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The Harveian Oration

ON

SOME EPOCHS IN MEDICAL RESEARCH

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BY

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Among his many and generous benefactions to the College, which long held a central place in his interest and his devotion, William Harvey, as you know, provided for the delivery of an annual Oration, to commemorate all the benefactors of the College, and "to Exhort the Fellows and Members of the College to search and study out the secrets of Nature by way of Experiment." Harvey thus formally bequeathed to us a great tradition, and took care that we should annually be reminded of its meaning and its claim. A Fellow of this College could receive no higher honour than to be called upon thus to commemorate William Harvey himself, as the greatest of our benefactors, and to obey his injunction; and I thank the President for having, in this year, accorded this honour and this duty to me.

We remember with pride that Harvey was lecturing on anatomy to this College during the twelve years which preceded and led up to the publication of his immortal book. It is on record that the transforming conception of the function of the heart, as a pump driving the blood "as it were in a circle," had already taken shape in his mind when his first course of these lectures began. Of the earlier course of development which had led him to the great discovery we know little beyond what he tells us in his book, and there in logical rather than historical order. We may feel certain, however, that the initial incentive to his inquiry was received during his studies in Padua. He tells us, indeed, that the discovery and description of the valves in the veins, by his teacher, Fabricius, acted as a direct stimulus; and there was other knowledge already then available, and waiting only for the central conception with which Harvey was to give it unity and simple meaning. The passage of blood through the lungs, from the right to the left side of the heart, had been clearly put forward in the book of Realdus Columbus, who may have seen it in the earlier tract of Servetus; Caesalpinus had apprehended the meaning of the heart valves, had argued that expansion of an artery with the pulse must be synchronous with the systole of the ventricle, and had even recognized that blood flows from the heart in the systemic arteries and to it in the veins. We might receive the impression that a simple step only was needed for the discovery that the blood has a continuous and double circulation. My predecessor of two years ago, Sir Thomas Lewis, suggested to us, indeed, that the discovery could not long have been delayed even had Harvey not made it, and that with the introduction of the microscope it could not have remained concealed. I suspect that, in that opinion, too little influence may have been allowed to the blinding effect of age-long tradition and doctrine, to question which was still an impiety, and which still befogged the minds even of those among Harvey's predecessors who had most nearly arrived at the truth.

I feel no strong conviction that even Malpighi, when the microscope showed him the movement of blood in the capillary vessels, would have known the meaning of what he saw, if Harvey's experiments, presented in a masterly array of argument, had not swept away the doctrine of Galen before the capillaries could be seen. It is clear that Harvey's own teacher, Fabricius, though he saw the valves in the veins and even observed their obstructive effect when the blood was pressed towards the periphery, thought of them only as preventing a too rapid passage in what still seemed to him a natural direction of the flow. We know, too, that when, after years of experiment, demonstration, and argument before this College, Harvey gave his discovery to the world, it found a world unready to accept it, even in those circles which had the same access to knowledge of all that had been done before Harvey. The rare combination was needed of the scientific insight of genius with a character and a courage of the highest order, to enable Harvey to break through the mists of hallowed error and to walk boldly into the light of a new epoch.

I am in the fullest agreement, however, with Sir Thomas Lewis, and with others amongst my distinguished predecessors, in regarding as Harvey's greatest achievement, not that he made a discovery of such profound and permanent significance, but that he created and displayed for all time the method by which such discovery may be attained and made secure. In the dedication of his book *De Motu Cordis* he lays down the principle of his method —"not from books, but from dissections; not from the positions of philosophers, but from the fabric of nature"; and then, in the book itself, he gives us the supreme example of its application. Again and again in his writings he recurs to this new principle of research, and proclaims his creed with an apostolic fervour. Thus, in his less familiar book on the Generation of Animals: "It were disgraceful, therefore," he writes, "with this most spacious and admirable realm of nature before us, and where the reward ever exceeds the promise, did we take the reports of others upon trust, and go on coining crude problems out of these, and on them hanging knotty and captious and petty disputations."

To the men of his day Harvey was preaching a new doctrine, and proclaiming a new method of increasing and securing knowledge. In this, indeed, he moved with the advancing thought of his time, and of the great men with whom he had had contact ; for Galileo was a professor in Padua when Harvey studied there, and Francis Bacon was Harvey's patient. To us it may seem now to be a platitude that science advances by experiment and by direct appeal to nature rather than by disputation about what others have observed or we ourselves have thought and believed. Yet, as Harvey seems to have foreseen, all of us, whether our effort to advance knowledge is made by the bedside or in the laboratory, need still to be reminded of this now familiar truth. The winning of real knowledge by experiment is slow and laborious, and exacts a stern discipline, while speculation offers an easy invitation to the ingenious mind. Theories we must have, to give system to our facts and direction to our experiments ; and the temptation is ever present—to the eager experimenter even more, perhaps, than to the quiet observer—to press new facts into the framework of a plausible theory, and to distrust or to disparage those which refuse to fit easily into a fancied picture. We stand all in daily need of Harvey's exhortation, to approach Nature with clear vision and alert attention, so that we may receive her teaching with free and humble minds.

Harvey and Clinical Research

Sir Thomas Lewis has rightly claimed that Harvey, the physician, was the father not only of physiology, but of clinical science. In Harvey's work we may find, indeed, the true beginning of the whole fabric of experimental medicine, of which our own times have witnessed so prodigious a development. No man with Harvey's passion for inquiry and with his faculty for patient and precise observation could have failed to accumulate material of great interest and significance in his practice as a physician. It is sad to think how little of this remains on record for us. In *De Motu Cordis* he foresees that " every part of medicine, physiology, pathology, semeiotics, and therapeutics " can be illuminated by the new truth of the circulation which he has declared, and that a field for study has been opened so vast that his " whole life, perchance, would not suffice for its completion."

In his first argumentative pamphlet addressed to Riolan in defence of the circulation, published in 1649, he still speaks of his intention of publishing his " Medical Anatomy," which from his description of its contents might have made him the first of morbid anatomists. Elsewhere, in the essay on parturition, which is richer than most of his writings in clinical records, he refers to one case as introduced from his " Medical Observations." We shall never know how much of Harvey's records of clinical research may have been lost to us by the political robbery and destruction of his papers during the civil war. Scattered through his published work we find but a sample here and there, as in the clinical experiment introduced, with but little relevance, indeed, into a chapter of *De Generatione*. There Harvey describes a young nobleman who, as a result of fractured ribs followed by suppuration, was left with a permanent open cavity in his side. At the bottom of this Harvey's exploring fingers encountered the rhythmically protruded apex of the heart, covered only by a layer of " fungous flesh " ; so that he can now verify on man, and demonstrate to the King, the correspondence of the apex beat and of the pulse at the wrist with the systole of the ventricle, in conformity with what experiments on animals had shown him long before ; but he can also add the new observation, which no animal experiment could have enabled him to make, that the normal heart is without any sense of touch.

The Genesis of the Royal Society

Harvey was a physician and approached his problems as such ; but he was a man of his own period, or in advance of it, ranging in eager inquiry over the whole animal kingdom and using everywhere the simple methods of investigation which came within the scope of his training and his equipment. In *De Motu Cordis*, and again, more definitely, in *De Generatione*, we find reference to another of his intended publications, which should have dealt with the " Causes, Uses and Organs of Respiration." In the earlier and justly more famous book we find him still accepting the old doctrine that the function of air in the lungs is to mitigate the heat engendered in the heart ; but by the later date he has had a glimpse of a truth which could not have been clearly seen with the knowledge of his time, and was not to be truly revealed till eleven years after his death. Discussing the need of the newly born infant for air, when once it has breathed, " it is," writes Harvey, " as if the heat were rather enkindled within the foetus than repressed by the influence of air." He makes the suggestion with doubt and hesitation, admitting that it deals with a question of the greatest difficulty. It is no more, indeed, than an inspired guess ; but it brings Harvey into another association, to which he belongs as of right, and to which we may feel certain that he would have belonged in fact, had he lived but a few years later. As early as 1645, when Harvey was still attached as physician to Charles the First, a group of men had begun to meet for discussion of the new experimental philosophy, stimulated by the writings of Bacon and by the news of physical discovery coming from Italy. Harvey's *De Motu Cordis* must also have been known to them. Later they met in two groups, in London and Oxford ; and the group meeting in London included Harvey's close friend, Dr. George Ent, while among those meeting in Oxford was another of his friends, Dr. George Bathurst of Trinity College. Bathurst had even shared in Harvey's embryological observations ; for Aubrey tells us that Bathurst " had a hen to hatch eggs in his chamber, which they [Harvey and Bathurst] opened daily to see the progress and way of generation."

Harvey, as we know, retired in 1646 to his brother's house ; and when, after the Restoration, the groups of experimental philosophers became, in 1662, incorporated as the Royal Society of London by a Charter from the new King, who desired " with a particular grace " to " encourage philosophical studies, especially those which by actual experiments attempt either to shape out a new philosophy or to perfect the old," Harvey had been dead for five years. But the spirit of the men who formed the new society was that of Harvey, and their activities were explicitly determined by the principle which he had so insistently advocated and of which his own work had given a shining example. His intimate friend, George Ent, who was his junior by twenty-six years, was a member of the Royal Society's first Council.

The Meaning of Respiration

The Royal Society, in its early years, may even be regarded as having, in a more particular sense, continued the work which Harvey had begun. Malpighi had seen the blood capillaries before the society was incorporated, but Leeuwenhoek's much fuller observations on them were made public in a letter to the Royal Society, as were so many of the discoveries which he so amazingly made with his simple microscopes. It was a group of the early Fellows in the society, including the great Robert Boyle, Robert Hooke the society's first curator of experiments, Richard Lower, and John Mayow, who made the first new stride forward in the science of physiology which Harvey had founded.

Harvey, as we have seen, had begun already in 1651 to doubt the doctrine that the function of respiration was to cool the blood, and to suspect that the air in the lungs might even "enkindle" the heat in the body. He himself could have carried the idea no further, but we may imagine how he would have rejoiced, if he could have been with Boyle and his associates, to watch its development in the light of their new discoveries. For, while Harvey's discovery of the circulation was based on the application of simple mechanical principles to precise anatomy, and on the experimental examination of the working of the heart and the blood vessels in living animals, the meaning of respiration could only be revealed by a knowledge of the chemistry which Boyle and his followers were newly creating for themselves. It had to be recognized that the function of the respiration involved a process of the same nature as combustion; and neither process could be understood until the discovery of oxygen had essentially been made. And this, in effect, was what Boyle, Hooke, and Mayow appear to have achieved, though the full significance of their discovery was long lost to sight. Lower, the only physician of the group, who also made important extensions of Harvey's work on the heart, added to the study of respiration the important discovery, which Harvey himself might have made, that it is exposure to the air in the lungs which changes the dark venous into the bright arterial blood; and Hooke gave a demonstration to the Royal Society which Harvey might well have made to the College of Physicians, when he showed that life was maintained with an open chest when air blown steadily into the trachea was allowed to escape from holes made in the surface of the lungs. But the essential function of the air, and in particular of what they called its "nitro-aerial spirit," in supporting a kind of slow combustion in the body could only be apprehended by these men who were studying air and its relation to combustion in general in the light of the new sciences of physics and chemistry, of which they were themselves among the founders.

Separation of Physiology from Clinical Medicine

It seems to me to have been inevitable that under these conditions the study of respiration, and with it the centre of progress in physiology, should for the time have passed out of the hands of the physicians and into those of investigators ranging the whole field of natural philosophy. The divorce from medicine of physiology, especially in this country where Harvey had brought it to birth, not only became nearly complete—more nearly complete, I believe, than it can ever become again—but it persisted for more than a century. And this may have been partly due to the fact that progressive minds in medicine became preoccupied with the systematic task of describing and classifying diseases; but the long persistence, I believe, was due in greater measure to the failure of chemistry to adhere to the principle which Harvey had proclaimed. It seemed to turn its back on the truth which had so nearly emerged from the early experiments of the Royal Society, and followed Stahl, a learned chemist but a dangerous and speculative theorist, who led it, and much of physiology with it, into the fog of the phlogistic theory. For more than a century progress was retarded and truth was obscured as the results of experiments were fitted or distorted into this frame of error. It began to be shaken with Black's discovery of carbonic acid; but even Priestley, when he rediscovered oxygen, could only regard it as "dephlogisticated air," and respiration, with putrefaction and combustion, as a "phlogistic process." The experimental genius of Lavoisier was needed to sweep the cloud away, and to let the light shine, which had already been dawning more than a century earlier, so that physiology and medicine could once more go forward with clear vision; and Lavoisier thus became the greatest physiologist as well as the greatest chemist of his day.

Of the leading actors in this rather sad interlude Stahl was a physician, as Harvey had been; but Stahl had forsaken Harvey's methods and relapsed into those which he condemned. I think it can properly be argued, however, that from Boyle to Lavoisier the basal discoveries required for the understanding of respiration had to be made by those who were laying the foundations of physics and chemistry, without any insistent preoccupation with the structure and functions of the human body, in health or in disease.

Conditions of Renewed Collaboration

Already, then, at the very beginning of experimental science, when, as we are apt to think with envy, the whole of the new experimental knowledge could still be assimilated by a single trained intelligence, some division of function began to show itself among the promoters of physiology, according to their way of approach, from the side of medical training or from that of the fundamental sciences. The division has inevitably grown deeper and the lines of cleavage ever more numerous. Such reproduction by fission is common to all the sciences, and is almost a condition of their growth; but, as with all but the lowest organisms, rejuvenescence and renewed vigour of development is dependent on fertilizing intercourse between units which have acquired a relative independence. There are those who see with fear and with regret the extent to which large and actively progressive sections of physiology, and even of pathology, have now loosened, or almost broken for a time, their connexion with the parent medicine, and formed closer alliance with physics, with chemistry, or with other branches of science. I believe the fears to be groundless, and I am sure that the regrets are vain. It would be deplorable, indeed, if there should be any failure in the succession of those who, coming to physiology from the side of medicine, devote themselves to increasing knowledge of the functions of the normal animal or human body as a whole, and make their contribution to the growth of medical knowledge in close co-operation, and even in functional interchange, with those whose centre of activity is in the wards. I see no reason to fear such failure: on the contrary, I think there are many signs of a growing recognition that both physiology and clinical medicine have still this duty and this need of a more immediate co-operation. But, as at the new birth of experimental science in the seventeenth century, so to-day, there are still domains opening to physiology which can only be explored by men, some of them trained in other disciplines than that of medicine, who must find their fruitful alliances in other fields of progressive scientific knowledge.

I have no qualm of doubt that the result, in the future as in the past, will be ultimately to infuse new life into medicine itself, and to promote its renewed advance, provided only that one condition be fulfilled. And I speak now in warm endorsement of the plea which Sir Thomas Lewis urged here with such conviction two years ago. The condition is that clinical medicine itself, in the hands of those who devote themselves to the increase of knowledge rather than its application, should remain, and should increasingly become, an experimental science, as Harvey saw it. As science grows, each of its followers must of necessity limit his expert knowledge and special technique to an ever-narrowing field; but the condition for stimulating and fertilizing contacts is not community of expert equipment, but a common priority of interest in the advancement of scientific knowledge and a common direct experience of the method by which that advance can be promoted. Harvey gave the first great example

of that method, and wished that we should be exhorted still to follow it. By obedience to that exhortation clinical medicine can remain in full communion with the other departments of experimental science, giving them its full co-operation and taking its full share in the general advance.

De Generatione Animalium

Harvey's *De Motu Cordis*, though its contents changed the face of medicine and opened a new epoch in science, is little more than a pamphlet in length. It may be supposed that, during the years in which he tested and confirmed his facts and interpretations, in lectures to his colleagues, Harvey was sifting his materials and clearing his mind, and was thus able to achieve this masterpiece of compact and orderly presentation by which the reader is carried with him to a triumphant and irresistible conclusion. Very different in this respect is the other book which he left us, *De Generatione Animalium*. This contains a wealth of careful and accurate observations in the two series dealing with the development of the chicken on the successive days of incubation, and with the appearance and development of the foetal deer on successive days after impregnation of the doe or the hind. Harvey's description of the earlier stages of embryogeny, and especially of placentation in the Cervidae, for the observation of which his royal master and patient allowed him to have unrivalled opportunity, might, one feels, gain a new interest, if edited and interpreted in the light of the comparative knowledge of these processes, which has been so greatly extended in recent years. Harvey, however, though he could, as always, observe faithfully and give a precise and vivid description of the things and the changes which he saw, lacked for their interpretation all that the microscope began to reveal so soon after his day. And though his description of the origin and development of the chick deals faithfully with the sometimes fantastic errors of his teacher Fabricius and others of his predecessors, it cannot stand with that which Malpighi was to send to the Royal Society some twenty-two years later, and which remained with remarkably little need of change for another two centuries.

This book, we may feel sure, is not in the form in which Harvey would himself have prepared it for publication. It is long and diffuse, and full of digressions which interrupt the progress of the argument. We know, indeed, from George Ent, that it would not have come to publication at all had his persuasion not prevailed over Harvey's reluctance. Thus we have here presented to us not the concise account of new observations and of conclusions directly to be drawn from them, which Harvey in the days of his mind's full vigour might have given us. We have, instead, together with records of brilliant observation, mostly set down long before, the long-drawn and wordy cogitations which had probably accumulated over many years ; in particular we have, at each stage, long discussions as to the points on which Aristotle was already right, or as to those on which Fabricius can be shown to have gone astray.

Harvey was an ageing man, tired with the controversies in which he had been involved by *De Motu Cordis*, unwilling to publish more, and depressed by the thought that his work on reproduction was left permanently incomplete by the loss of his observations on insects. We may be very glad, however, that Ent overcame his scruples ; for this book not only gives us further insight into Harvey's method, when he "addressed Nature herself," and "consulted his proper senses," but allows us also to see into what vague and fruitless speculations even he could wander, far beyond the facts available to his observation, when he forsook his own precepts. Harvey, with no microscope, could have no knowledge of spermatozoa, though it is curious that he should have missed the follicles and corpora lutea of the mammalian ovary. Like his predecessors, he seems still to regard the ovary as a kind of female testis, but he rejects the view that the male and the female seed mingled in the uterus and there gave rise to the ovum. He knows, of course, that the hen can produce ova without fertilization by the male. Not finding the semen in the uterus after coitus, he denies that it penetrates so far. For him the semen exerts a mysterious fertilizing influence on the whole female organism, under the stimulus of which the uterus conceives a fertile ovum as the brain conceives an idea. He seems almost to allow himself to be misled by a metaphor ; for, having seen waves of contraction passing over the uterus of a recently impregnated deer, he even wonders whether the brain would show such movement if we could watch it in the act of conception.

Some discussion has arisen with regard to Harvey's views, as indicated in various passages of this remarkable book, as to the possibility of spontaneous generation. It is, indeed, not easy to be certain as to his belief. On the title-page and early in the text he clearly states that "all animals are produced from ova." Later, in the same chapter, we find him stating: "Even the creatures that arise spontaneously are called automatic, not because they spring from putrefaction, but because they have their origin from accident, the spontaneous act of nature, and are equivocally engendered, as it is said, proceeding from parents unlike themselves." Here he seems to believe that, though the egg must always be the first stage, it may in some cases arise spontaneously or from parents of a different species. Later in the book, however, we find another passage, written perhaps at a later date, which, if taken by itself, would suggest that Harvey had reached a conclusion much further in advance of the knowledge of his day. "But on these points," he writes, "we shall say more when we show that many animals, especially insects, arise and are propagated from elements or seeds so small as to be invisible (like atoms flying in the air), scattered and dispersed here and there by the winds ; and yet these animals are supposed to have arisen spontaneously, or from decomposition, because their ova are nowhere to be found." We are left wondering what we may have lost by the destruction of Harvey's records of his observations on the generation of insects ; how they might have related his experiments to those of his contemporary, Francesco Redi ; and what basis of observation they might have shown us for this remarkable passage. Harvey, we must remember, had no knowledge of any animals, or living things, too small for detection by his unaided vision. But this conception, even in relation to the living things which he knew, is much in advance of his age, and seems to link him in thought, across the coming centuries, with Spallanzani, and even with Pasteur and Tyndall.

Research of To-day

It is customary on this occasion to review some recent phases of active experimental development in the field of the medical sciences. We could pay no more fitting tribute to the memory of the founder of experimental medicine. The task of selecting items for such mention, and especially of associating them with the activities of particular men, will probably become year by year less easy. It becomes, indeed, ever more difficult for any investigator to scrutinize and to appraise even those published observations and experimental records which are related to his own special field of work. It begins to be the rule rather than the exception for some new and definite advance to be announced almost simultaneously from more than one laboratory, and often from more than one country. The position

may well look different in historical retrospect ; but to us who live amid this urgency of accumulation it must seem unlikely that a new epoch will ever again be opened by a Harvey or a Darwin, sifting and testing his evidence for patient decades, before he gives his theory to the world. Meanwhile we can try to distinguish tendencies and lines of more rapid development, promoted by the activities of many, which the future may recognize, perhaps, as epochs dating from our own time.

Ultramicroscopic Viruses

We date the beginning of the great epoch of bacteriology, dealing with organisms which the ordinary microscope revealed, from the work of Louis Pasteur and Robert Koch. Harvey had no knowledge of living beings below the limits of unaided visibility ; but he had only been dead twenty years when Leeuwenhoek, in one of his letters to the Royal Society, first described and even recognizably figured bacteria, as seen with his simple lenses. Two further centuries passed, however, before Koch was able to give the first completed identification of a bacillus as the specific cause of a disease. When, after a period of progressive triumph, bacteriology still failed to reveal the causes of some of the most familiar and deadly among the infectious diseases, there came in our own time the intensive study of a further order of living, infective agents, below the range of ordinary microscopical vision. It is unlikely that the future will identify any outstanding names with what may be the beginning of another epoch as important to medicine as that of bacteriology, concerned with the viruses still called "ultramicroscopic" or "filterable" ; though special microscopical methods have already rendered many of them visible, and all can be stopped, and even differentially separated, by filters of an adequate and accurately graded fineness. We associate the names of Ivanovski and of Beijerinck with early discoveries of such a virus as the cause of a plant disease, and those of Loeffler and Frosch in a similar sense with the virus causing the foot-and-mouth disease of cattle. But the general advance in this field, which did not begin until a quarter of a century later, has been on a wide front, and investigators in many laboratories of many lands are engaged in it. In rapid succession the agents responsible for infectious diseases which bacteriology had left as unsolved problems are being identified as belonging to this group, which but a few years ago seemed so inaccessible to further research.

My colleague C. H. Andrewes, in his Oliver-Sharpey Lectures of 1934, discussed before this College the many respects in which conformity to this type is shown by the infective agents which transmit certain tumours in experimental inoculation. One of the recent additions to the general list of diseases transmitted by viruses, and one which has excited interest in circles beyond that of medicine, is epidemic influenza, for the study of which by my colleagues Laidlaw, Andrewes, and Smith, the earlier work of Laidlaw and Dunkin on dog distemper had provided some ground of experience, and had brought to notice a suitable subject of experiment in the ferret. Further advance in the study of this, and of many other virus infections, is dependent not only on the provision of opportunity by Nature and by clinical medicine, but also on the development of new methods, which is in active progress in many laboratories. New principles of immunity, for which bacterial immunology has given at best imperfect analogies, are coming into view. The greatest difficulties of conception, however, are those connected with the dimensions of the infective units of the different members of a series showing so many points of uniformity in their general behaviour ; for these units are, at the upper end of the scale, just visible by ordinary microscopy, with the appearance of very small cocci ; while, at the lower end, the units of such viruses as those of foot-and-mouth disease and poliomyelitis appear to be of comparable dimensions to the molecules of certain complex proteins. Here, if the data of measurement have been rightly interpreted, we seem, through a continuous series, to pass from definite though very minute organisms to a borderland between organization and colloidal dispersion where biology and physical chemistry must, perhaps, join hands in interpretation of a new order of vital phenomena. It may be noted that, quite recently, confirmation has been given of a previous claim to have obtained the virus of a plant disease in the form of protein crystals.

An Epoch of Chemistry in Medicine and Biology

If I were asked to name a prevailing tendency of the present time in medical, and indeed in a wider range of biological research, I should refer to the rapidly increasing dominance of chemical methods and chemical ideas. Within the memory of many of us organic chemistry had still but a small and precarious footing in this domain. To-day not only has biochemistry firmly established its claim to separate recognition and enrolled a growing army of investigators, but physiology, pathology, immunology, even embryology, are increasingly permeated by chemical ideas and chemical methods, which are yielding a surprising harvest of discovery in fields which till recently seemed beyond hope of such cultivation. I can permit myself to choose but a few examples.

Hormones

Research on the hormones is one of the directions in which, at the moment, chemistry can show a record of the most rapid advance and of unforeseen achievement. Twenty years ago, of the hormones then recognized adrenaline alone had been chemically identified and made by synthesis. Of the others, only thyroxine, on account of its great stability, seemed possibly accessible to structural chemistry ; though few could have expected that its structure would so soon be determined and its synthesis achieved. Secretin and the active constituents of the pituitary posterior lobe had been obtained in stable, though highly impure, solutions ; but for the other ductless glands, even the formation and secretion of hormones by them was a matter of inference rather than of direct demonstration. There seemed little likelihood that such hormones would ever be extracted, and the possibility of their isolation for chemical study seemed too remote for consideration. I believe that the successful preparation of insulin by Banting and Best had an influence far beyond that due to its immediate importance for medicine and for the understanding of carbohydrate metabolism, in that it aroused a new spirit of enterprise and optimism with regard to the possibility of obtaining other hormones which had seemed equally intangible. Insulin itself, being of protein nature, still presents a difficult problem to the structural chemist ; but it has been crystallized, and the interesting discovery has now been made (Scott) that the crystals are insulin in combination with metallic ions, normally those of zinc. Since insulin was first prepared methods have been found for extracting the hormone of the parathyroid glands and that of the suprarenal cortex, and it seems probable that the latter has now been obtained in a pure crystalline form in more than one centre.

A series of hormones from the gonads have, in the space of a few years, been isolated, identified, and in more than one case even made artificially by partial synthesis. These hormones determine secondary sexual characters and cycles of sexual activity ; they provide for implantation of the fertilized ovum and for the

development of the placenta and the active mammary gland. The generation which immediately followed Harvey saw the recognition of the ovarian follicles by De Graaf and the description of the spermatozoa by Leeuwenhoek ; but even by the end of the nineteenth century such problems as the causes determining the development of accessory reproductive organs, and the nature and causation of the sexual cycles in different animals, had only been touched by the investigations of such lone pioneers as the late Walter Heape. And even till the second decade of the present century the work of Heape and of F. H. A. Marshall, whom the College to-day honours with its Baly medal, stood almost isolated in this country in its bold attack on what seemed the almost impenetrable tangle of sexual physiology. To-day we are already in clear sight of the ascription of each phase of the female sexual cycle to the action of a separate, chemically identified ovarian hormone ; a hormone from a ripened ovarian follicle being responsible for the oestrus in which the uterus is prepared and sensitized for its function, while another, from the corpus luteum, in due course brings about the endometrial hypertrophy which provides for implantation of a fertilized ovum, or, failing it, terminates in the menstrual breakdown. There are yet many complexities to be unravelled ; but these two ovarian hormones, as also a testicular hormone, are already substances of known chemical structure ; and the luteal and male hormones have been artificially prepared from different inert sterols. In the case of the oestrogenic and of the male hormone, chemistry can now indicate, in each case, precise structure of a less active form excreted in the urine, and of a more active form obtained directly from the respective gonad, and presumably representing the true, effective hormone.

Behind this immediate control, moreover, and determining the development and successive phases of activity of the gonads themselves, is the anterior lobe of the pituitary body, with its complex of hormones still beyond the reach of structural chemistry but ever growing in apparent number with the progressive recognition of the multiple functions of this little gland. The breath-taking rapidity of experimental progress in this particular field may be inducing a too facile postulation of a new hormone to account for each new set of phenomena observed ; but if observation is accurate and uncoloured by preconception, the true meaning will emerge in due course. In any case it is clear that the anterior pituitary lobe exerts some kind of hormonal control over the development and activities of practically every other endocrine organ, and therewith over almost every phase of growth and of metabolism. Even more mysterious in their meaning are the recent observations of Collip and his co-workers, showing that some of these hormones, on continued artificial injection, provoke in the recipient a resistance to their own actions, which its blood serum can then transmit to another animal.

We have noted that such of the sex hormones as have been isolated have points of common structure with the sterols, and can, in some cases, be prepared by chemical modifications from members of this group. This brings them into a curious relation with other substances, also structurally related to the sterols and possessing intense biological activities of widely different kinds—the anti-rachitic vitamin D, the cancer-producing constituents of tar, and the heart-stimulating glucosides of the digitalis group. There is evidence, again, that the organization of the cells of the early embryo into the characteristic foetal structures is effected by a chemical stimulus, and that the substance concerned also partakes of the molecular pattern common to the sterols, and to so many substances of intense but apparently unrelated activities.

Vitamins

In the group of the vitamins, which so recently might have been regarded as intangible traces of unstable and probably highly complicated substances, chemistry has found in recent years so successful an application that three vitamins have already been chemically isolated, including the vitamin D already mentioned, together with the natural precursor of another ; and one has already been made by artificial synthesis. In some ways comparable to the action of the vitamins is that newly discovered for choline. The recent work of Best and his co-workers seems to show that the presence of choline, or of the allied betaine, in very small quantities in the diet, is in some way essential for the maintenance of a normal adjustment between the deposition of fat in the liver and its mobilization from that organ.

Other Applications of Chemical Methods and Ideas

Many other examples could be quoted of this increasingly prevalent and successful application of chemical methods to problems in all departments of medical science which even recently seemed to be beyond the reach of such attack. Thus, structural chemistry already has its place in immunology, and begins to reveal the nature of antigenic specificity. The late Dr. James Collier made reference here, last year, to the evidence which is being obtained by my colleagues and myself of the intervention of known chemical stimulants, and in particular acetylcholine, in the transmission of the effects of nervous impulses across the gap between the ending of a nerve fibre and an effector cell or another neurone, apparently throughout the peripheral nervous system. The chemical changes in a muscle accompanying its contraction seemed but a few years ago to be adequately comprised in a cycle of cleavage and resynthesis between carbohydrate and lactic acid. They are now revealed as a highly complicated chain of linked reactions, involving creatine, adenylic acid, and phosphoric acid, in addition to carbohydrates ; and the complexity still grows. Sir Thomas Lewis and his co-workers, whose earlier experiments on the skin vessels of man brought evidence of the release of a chemical substance as the cause of their reactions to injury or irritation of the epidermis, thus making contact with our laboratory investigations on the occurrence and actions of histamine, now trace the pain caused by ischaemia of a muscle similarly to a chemical source.

Conclusion

If we allow ourselves to pause a little and to ponder, standing aloof for a moment from the insistent quest for new experimental data, with its growing multitude of eager followers, we may begin to ask whither it is leading us. We have only to look back to the beginning of this century to realize how all aspects of medicine—diagnosis, treatment, and prevention—have been involved in, and in some directions transformed by, the change which has been taking place. But are we really at the beginning of a new, great epoch, or merely involved in one of which the end can already be seen from afar? We can now speak familiarly of the chemical structure, and even the artificial synthesis, of hormones and vitamins of which the very existence was but recently a mere presumption from observed effects ; but we have no basis even for speculation as to why a precise structure endows a substance with an effect so potent, and often so complex. We can identify in the body the types of cell which are specifically sensitive to acetylcholine, and we can find evidence that impulses, passing down nerve fibres which end in contact with these cells, excite or inhibit their activity by releasing that sub-

stance; we can even make an estimate of the number of molecules of acetylcholine released by a single impulse at a single ganglionic synapse; but we are no nearer to a conception of the meaning of a specific sensitiveness to a substance having that structure, or as to why its presence should augment the activity of one type of cell and inhibit that of another. The complex changes accompanying a muscular contraction are known in much greater detail than those of any other kind of functional metabolism; but there is yet no knowledge clearly relating these changes, or any part of them, to the mechanical event of the contraction.

Are we witnessing the early stages of a major advance in which a finer physical conception of the structure of living matter will ultimately give order and meaning to the knowledge, now so rapidly accumulating, of the chemical changes which accompany vital activities, and of the chemical substances which so mysteriously condition or control their occurrence? Or will physiology find itself brought early to a halt in the line of its present advance, baffled by a complexity which its methods have revealed, but which they cannot yet begin to resolve? None of us, I think, can answer such questions. We must be content to follow patiently what clues we find, and to go forward in the faith of Harvey, that

> "Nature herself is to be addressed; the paths she shows us are to be boldly trodden; for thus, and whilst we consult our proper senses, from lower advancing to higher levels, shall we penetrate at length into the heart of her mystery."

OESOPHAGEAL OBSTRUCTION*

BY

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Obstruction of the oesophagus is one of the most distressing conditions by which any individual can be afflicted. It is true that it is only a symptom, but it is a symptom of such gravity that the problem of its relief entirely overshadows that of the removal of its underlying cause, and it is well that one should recognize that this is the case, since if relief is difficult cure is only too often impossible.

Of the many causes of obstruction we shall only deal with two—carcinoma and cardiospasm—since in frequency and in surgical interest they far exceed all other sources of dysphagia. Moreover, these two conditions may present a nice problem in diagnosis, their treatment is altogether different, and the results are in equal contrast.

Carcinoma of the Oesophagus

Carcinoma of the oesophagus is essentially a disease of elderly men, 90 per cent. of the male cases occurring after 50, and the maximum incidence lying between 65 and 70. In women it is much less common, one woman being affected for every three men, and in women it occurs more or less uniformly at any age after 40. Moreover, in men it is commonly a disease of the lower oesophagus, 80 per cent. of the cases occurring below the tracheal bifurcation, while in women it occurs in any situation, and a large proportion arise from post-cricoid growths.

The first symptom is almost invariably a steadily increasing dysphagia, although occasionally the onset is so abrupt as to give the impression that a foreign body has become impacted. At first there is difficulty in swallowing solid food, then liquids only pass down slowly, and, finally, food may be regurgitated in unaltered form. Inability to swallow saliva is a very serious inconvenience, and this is increased by the secretion of a stringy mucus, so that the oesophagus becomes filled by a tenacious froth, which further impedes swallowing. We regard this froth as a diagnostic sign of the first importance. At first it is white and odourless, but in the later stages it becomes blood-stained and foul, indicating a fungating and ulcerated growth, and producing a marked fetor.

At a still later stage involvement of the respiratory passages gives rise to an important group of secondary symptoms. The secretion of mucus is increased and is accompanied by a constant irritable cough. Finally, the growth perforates the trachea, or bronchus, or the lung itself, a fistula is formed, and a septic pneumonia develops. Yet the tolerance of the lung is remarkable, and we have seen a stream of barium emulsion cascading through a fistula into the whole of the lower lobe with no apparent inconvenience to the patient, who ultimately coughed it up. Occasionally a large vessel is opened up, and haemorrhage quickly closes the scene.

The pathological features correspond to the advanced clinical picture, and indicate one of the most malignant and remorseless growths with which surgery ever has to deal. Operative exposures and post-morten examinations agree in revealing growths which have invaded surrounding structures at an early stage, and it is rarely that a growth will be found which even the most optimistic surgeon could regard as operable. One soon realizes that dysphagia is a later development, and that in the great majority of cases the growth is far advanced before it gives rise to this, the earliest indication of its presence.

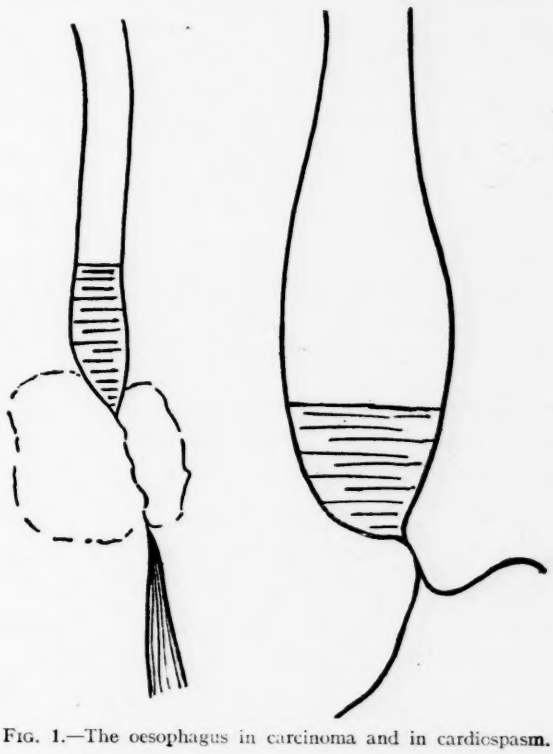

FIG. 1.—The oesophagus in carcinoma and in cardiospasm.

In our opinion, then, the practical problem of carcinoma of the oesophagus is to enable the patient to swallow, and, fortunately, it is usually possible to achieve this by comparatively simple means. It is only rarely that the question of radical removal can even be raised, and, in spite of a few brilliant results, it seems to us most unlikely, from pathological considerations alone, that it can ever become a practical method. The depth at which

*A special clinical lecture given by request at the Melbourne Meeting of the British Medical Association, September, 1935.

the oesophagus lies, the fragile nature of its wall, which possesses neither a submucous nor a peritoneal coat, the complexity of the structures by which it is surrounded, and the age at which the disease occurs, are all opposed to a direct attack, and one may be sufficiently grateful if one can relieve the dysphagia.

The diagnosis will rarely be in doubt, and it can be settled at once by an *x*-ray examination. On the fluorescent screen the barium emulsion is seen to reach the obstruction and to fill up the lumen of the oesophagus above it. Except in the rare cases in which the obstruction is absolute, it will now be seen to trickle slowly through it and to fill up beyond it the longitudinal folds in which the mucous membrane of the empty oesophagus normally lies. In the case of a malignant stricture a moderate degree of dilatation may be observed above, the shadow will terminate in a cone pointing downwards, and from the apex of the cone a fine, twisted stream of barium will be seen making its way through the tortuous vagaries of the growth.

Intubation for Cancerous Dysphagia

The most direct and simple means of relieving the dysphagia is intubation, and the method which I propose to describe is one which I have been using for the last ten years with increasing success. The tube which I employ is a flexible spiral formed of German silver wire and gilded. The tube has an expanded upper end and a twisted oval section, which prevents displacement. From its complete flexibility the tube is well tolerated, the patient being quite unconscious of its presence, whilst the lumen is so large that he can swallow ordinary food without difficulty.

The introduction of these tubes requires the use of an oesophagoscope of larger dimensions than those usually employed. The one which I most frequently use has a slightly oval section and is 20 × 18 millimetres in outside diameter. In most instances there is not the slightest difficulty in passing this large instrument, and it gives a facility which makes manipulations much safer than with one of smaller size. Three lengths of tube, 10, 14 and 18 inches, enable one to reach any stricture under the most advantageous conditions. Smaller tubes, 18 × 16 and 16 × 14 millimetres in diameter, enable one to deal with cases where the larger tubes cannot be passed.

With the patient lying flat on his back the head is extended at the occipito-atlantal joint, but is lifted forward so as to straighten the cervical spine. No greater mistake can be made than forcibly to extend the neck. The head, supported by an assistant, is now slightly deflected to one side, and the operator inserts his instrument at the angle of the mouth, thus avoiding the prominent central incisors, if they are present, and entering at a point much nearer the pharynx.

Under the control of vision the epiglottis is now lifted forwards on the beak of the instrument, which enters the pyriform fossa of the opposite side. From this it is deflected to the middle line, where it is probably brought abruptly to rest by spasmodic closure of the cricopharyngeus, the passage of which is the most difficult part of the operation. Gently pressing the tip of his instrument against the sphincter, the operator waits until with a deep inspiration it opens, disclosing the lumen of the cervical oesophagus, into which the instrument glides. After advancing an inch further the wider lumen of the thoracic oesophagus opens up, expanding with each inspiration and closing on expiration to a transverse slit. The assistant now slightly raises the head, and the instrument glides easily through the thoracic oesophagus, following the natural concavity of the thoracic spine. As the lip of the instrument, guided by the vertebral column, again turns forwards, the head, neck, and shoulders must be depressed. The lumen now assumes the appearance of a vertical slit, where the oesophagus passes through the diaphragm. At this point extreme care must be taken, for not only is the oesophagus itself here very fragile, but its fixation to the diaphragm renders it peculiarly liable to trauma. Beyond this the cardia will be seen as a puckered opening, to which folds of mucosa converge. Entry into the stomach is announced by a gush of fluid and the appearance of heavy folds of dark pink mucous membrane.

Where a carcinoma is present the appearances are very characteristic. On entering the oesophagus its lumen will be seen to be occupied by a thick, white, frothy mucus, which entirely blocks the view. On advancing further, variable quantities of liquid and of food remains appear, and if these are excessive the simplest plan for their removal is to tip up the table and to allow them to flow down the instrument by gravity. As the stricture is approached it will be seen that the walls of the oesophagus, thickened by infiltration, no longer open and close with respiration, whilst slight dilatation of the lumen is usual. The stricture itself may appear as a mere constriction of the mucosa or as a fungating mass of vascular growth, which bleeds readily on contact, or we may see a deep ulcer in the oesophageal wall. In any event, it must be remembered that all we see is the upper margin of the growth, and that from the appearances alone we can form no idea of its extent.

Passage of Bougie

An attempt must now be made to pass a bougie through the stricture, and for this purpose I use a modification of Jackson's bougie, a flexible sound attached to the end of a steel wire, which does not interfere with vision. Under the guidance of the eye the end of the bougie is manipulated until it engages in the lumen of the stricture, through which, in most cases, it will then pass without difficulty. Not the least force must be used, for the wall at this point may be formed by soft growth, through which, with the slightest violence, the bougie may penetrate. Once the stricture has been successfully passed the bougie is pushed on until the wire occupies the stricture and forms a guide over which the dilators may be passed.

These dilators are of a novel type, which I devised specially for this purpose. They are formed of short cylindrical rods of aluminium with an axial hole to slide freely over the wire guide. Each is attached to a long rigid steel wire, and the sizes rise by millimetres from 4 mm., the smallest, to 11 mm., the largest, in diameter. By passing these in turn completely through the stricture it can usually be dilated with great facility up to the full size. At the same time, as each dilator passes through and clears the constriction, an accurate measurement of its length may be obtained. The method appears to be devoid of risk, but there is one circumstance in which I have always felt it necessary to exercise great caution. If, on dilating a dense stricture offering considerable resistance, it is noted that the resistance has suddenly disappeared, dilatation should proceed no further, as obviously there is a distinct risk of tearing the oesophageal wall if it is continued.

The stricture once dilated the introduction of the flexible tube is achieved by a simple device. The tube is mounted by its proximal end on a holder which just fits it, whilst into its distal end is inserted a small cone of gelatin. The latter enables the tube to glide through the stricture with facility, and it is dissolved in a few minutes. The tube is advanced until it is just clear of the oesophagoscope, the end of which can now be used to detach it from the holder, which is then withdrawn, leaving the tube in position, with its expanded upper end resting on the face of the stricture.

No further precautions are necessary, beyond reasonable care in the choice of food. If the patient is edentulous he can of course only take soft foods, but if his teeth are sound he can deal with any ordinary meal, and within two days most of these patients can be placed on an ordinary diet. They must be careful to wash down any remains of food, to eat slowly, and to avoid fibrous substances such as orange pulp or stringy meat, or such solids as orange pips or raw onions, which might become impacted in the tube.

As regards the tube itself the patient is entirely unaware of its presence, and, so far as we have been able to observe, it never gives rise to ulceration. We have actually verified tubes in position after eighteen months canalizing a large mass of carcinoma. This, however, could only happen with a dense scirrhus. With soft growths the tube is often passed after a few weeks, leaving, however, a canal which functions perfectly. The tube passes freely through the intestine, and only once have we seen one impacted.

Cardiospasm

Except for the one feature of dysphagia, cardiospasm contrasts with carcinoma of the oesophagus in almost every feature. It occurs in younger people, occasionally as early as 20, most often in women, and frequently in persons of a nervous disposition. Its relation to the nervous system is sometimes stressed by its appearance after a severe shock, or as a sequel to some illness.

The patient usually complains, not of inability to swallow, but of regurgitant vomiting, not recognizing that the food has never entered the stomach. An *x*-ray examination after swallowing barium emulsion shows a dilatation of the oesophagus, which may be enormous, terminating abruptly either at or a little above the cardia. In severe cases the obstruction may be absolute, but in most cases it yields to the pressure of a column of barium in the oesophagus when this has reached a certain height, the barium then running through until the pressure is insufficient to compel an opening. During this process the whole oesophagus may sometimes be seen to be in violent agitation with an irregular peristalsis which fails to advance the contents and only succeeds in rejecting them.

The oesophagus may be of such dimensions as to occupy a large portion of the thoracic cavity, and it may even be folded on itself so as to resemble the colon in Hirschsprung's disease. The wall is greatly thickened, rigid, and imperfectly contractile, whilst the lining mucosa may be ulcerated or covered by large patches of leucoplakia. Obviously such a structure can only return to normal by very slow degrees, even when all obstruction has been relieved.

Since the condition is generally progressive and may go on for many years, starvation and malnutrition may reduce the patient to an extreme degree of emaciation. As, however, the oesophagus has a great capacity, and as the respiratory tract is not affected, he is not troubled by the frothy mucus and the inability to swallow it which are an added misery in carcinoma.

The condition is primarily due to spasm of the circular fibres at the lower end of the oesophagus, and especially of the slightly condensed group which surrounds the cardiac orifice of the stomach. Whether the diaphragm ever plays a part is a matter of dispute, but it has now been shown conclusively by Knight's experiments that the condition is due to an over-action of the sympathetic fibres which control the whole region of the cardiac orifice. We have obtained confirmation of this control in a number of cases in which we have flooded the splanchnic area with novocain in the usual course of splanchnic anaesthesia. In every instance there has been complete relaxation of the cardia, even where previous attempts at the passage of bougies had failed entirely.

Operations for Cardiospasm

Knight, however, showed that a large portion at least of the sympathetic supply is carried on the coronary artery, and he suggested that excision of this artery and of its gastric and oesophageal branches might relieve the condition. We have carried this out in two cases with satisfactory results, confirming the results already obtained in four cases by Adamson. Our patients are able to swallow satisfactorily, and state that they are greatly relieved. The *x*-ray picture, however, still shows some degree of spasm, and in view of the absolute relaxation produced by splanchnic anaesthesia we cannot believe that

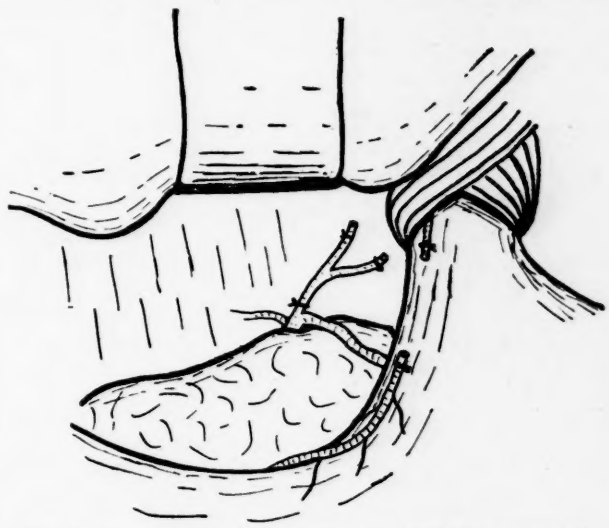

Fig. 2.—Sympathectomy for cardiospasm (Knight's operation).

we know the whole story, and feel that this is still a field for research. The relief of the patient is, however, undoubted and the procedure is a practical success.

The alternative is to open the stomach and to dilate the cardiac orifice with the fingers. The results are good, but the operation is somewhat crude and not always easy to perform. It is greatly facilitated by splanchnic anaesthesia, which at once relaxes the spasm of the cardiac orifice, but if the results of the sympathectomy prove to be permanent forcible dilatation will, without doubt, be replaced by the more elegant and scientific procedure.

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Souttar, H. S.: *Brit. Journ. Surg.*, 1927, xv, 57, 76.
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On November 13th Mr. E. T. C. Milligan will give an epidiascope demonstration before the South-West London Medical Society on "Modern Methods and Treatment of Ano-rectal Diseases." Lectures will be given as follows: December 11th, Dr. H. W. Barber, "The Aetiology and Treatment of Eczema and Psoriasis"; January 8th, Dr. H. Crichton-Miller, "The Neurotic as the Practitioner's Bogy"; February 12th, Mr. C. D. Read, "The Problem of Abortion and Sterilization"; and April 8th, Mr. Hamilton Bailey, "Swellings in the Neck." On June 10th Sir George Lenthal Cheatle will deliver the Bolingbroke Lecture on "The Relationship of Experimental Pathology to Human Carcinoma." The meetings will be held at Bolingbroke Hospital, Bolingbroke Grove, Wandsworth Common, S.W., at 9 p.m.

PREMEDICATION *

BY

F. W. GREEN, M.B., Ch.B.

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The last ten or twelve years have shown an enormous increase in the number of drugs used for pre-anaesthetic medication, and a controversy has raged amongst anaesthetists as to which is the best premedicant, some supporting the claims of one, some of another, the choice depending on the personal predilection of the various administrators. From this difference of opinion three points emerge clearly:

1. That nervous and highly strung patients, and especially children, should receive some form of sedative drug treatment to ameliorate the psychic effect inevitable whilst waiting to be brought to the theatre.
2. That adequate premedication greatly decreases the amount of general anaesthetic needed subsequently.
3. That there is no form of premedicant treatment that is applicable to all cases. Each case must be considered as a separate entity and a suitable drug administered.

Towards the latter end of last and the beginning of the present century it was a common practice to give 0.016 gram (1/4 grain) of morphine as a preliminary to a chloroform anaesthesia often lasting two or more hours, without any apparent ill effects. What would be the remarks of a present-day surgeon should any such combination of anaesthetics be suggested?

For the purpose of this paper premedicant narcotic drugs may be divided into three groups according to the method of administration, and only those in common use will be discussed.

Drugs Given by the Mouth

(*a*) *Chloretone.*—In at least one of our leading public hospitals it is the custom to give chloretone 0.65 to 0.97 gram (10 to 15 grains) as a routine before all ether anaesthesias. The patients appear to be as comfortable as with a small dose of the other narcotics, and the after-vomiting is certainly less. Although the patients are rarely brought to the theatre asleep, occasionally there is complete forgetfulness of the period immediately prior to the operation.

(*b*) *The Barbiturates, Sodium Amytal, and Nembutal.*—If these drugs are used at all the dose should be sufficiently large to ensure that the patient is asleep before the general anaesthetic is commenced, as small doses are very uncertain and variable in their action. The use of sodium amytal should be confined to robust and virile types of patients, and the best results will be obtained by administering it in divided doses: 3 grains on the night before operation, 3 grains three hours before, and 6 grains two hours before. With this dose the patient will almost invariably be brought to the theatre asleep, and will remain so for several hours. The drawback to the use of this drug is the fall of blood pressure which it causes. This is very great in some cases, although much less with oral than with intravenous administration. The use of sodium amytal is very often followed by a period of excitement. This, however, can usually be controlled with morphine. Nembutal should be given in 3-grain doses half an hour before operation. It is quicker in its action than sodium amytal, the fall of blood pressure is less, and the period of narcosis much shorter. On the other hand, its sedative effect is much less and its action very variable. It should be reserved for women and the less vigorous types of male patients. Pernocton, sodium alurate, pernoston, and various other barbiturates have not been used to any great extent in this country, but the foregoing remarks apply in some degree to them all. It is often the custom to combine the use of morphine with the barbiturates. This should never be done, as the long list of fatalities goes to prove.

Drugs Given Intravenously and Subcutaneously

(*a*) *The Barbiturates.*—Most of these when first introduced were administered by the intravenous route, but this procedure for various reasons is gradually being abandoned in favour of oral administration. The fall of blood pressure is greater than when the drug is given by the mouth, and patients with an idiosyncrasy to the drug are more liable to receive an overdose, since the administrator has little control once the injection has been made into the vein. Of late sodium evipan has come into popular use. It, however, causes a greater though more evanescent fall of blood pressure than the other barbiturates, and a degree of narcosis equivalent to the third stage of anaesthesia. It appears to be rather a potent drug to use for this purpose until it has been further tried out as an anaesthetic *per se*.

(*b*) *Morphine and its Derivatives.*—In years gone by it was a common practice to give a small dose of morphine whatever the nature of the surgical procedure and the physical condition of the patient may have been. However, as it is a respiratory depressant and increases the post-anaesthetic vomiting, its use is now becoming much less frequent. A still further deterrent, especially in teaching hospitals, is its effect on the pupil whereby the depth of anaesthesia is obscured. Hyoscine is often employed with morphine. It is doubtful if this practice is ever advisable on account of its depressant action on the respiratory centre. If used it should only be in cases where rebreathing is to be practised, as then the carbon dioxide acts as a stimulant. Even then it should never be used before the administration of ethylene, as very frequently a stoppage of respiration has occurred with this combination, ethylene being also a respiratory depressant.

Drugs Administered per Rectum

Drugs given by the rectal route have a much more consistent action than if given orally, as their absorption in the stomach is inhibited in nervous and frightened patients. Paraldehyde and avertin are the two narcotics which are commonly administered in this manner.

Paraldehyde is given in doses up to 0.56 c.cm. per kilo (1 drachm per stone) of body weight. One part of paraldehyde is shaken up with ten parts of water and injected one hour before operation. The main drawback to its use is the uncertainty of its action, the same dose producing widely different effects in different patients. It also appears to cause small haemorrhages in the mucous coat of the stomach, indicated by coffee-grounds vomit.

Avertin appears to be the most generally suitable of all the premedicants, provided that the dose is small and in proportion to the age, physical condition, and weight of the patient. There is a fall of blood pressure, but if the amount given is within reasonable limits this is negligible and transitory in its duration. The dose should be from 0.05 to 0.1 c.cm. per kilo of body weight. Larger amounts than this should never be used under any circumstances. Half an hour after the injection the patient is brought to the theatre quietly asleep, and very little general anaesthetic will be necessary for one or two hours. After-excitement is negligible, but should it occur it can be easily controlled with a small dose of morphine.

* Read in opening a discussion in the Section of Pharmacology at the Annual Meeting of the British Medical Association, Melbourne, 1935.

Where muscular relaxation is required and a gas-oxygen anaesthetic is to be used some form of pre-medication is essential. The use of a suitable hypnotic will usually obviate the necessity of adding ether to the gas employed.

In certain operations in which it is essential that there should be no post-anaesthetic vomiting, a preliminary administration of a small dose of avertin followed by anaesthesia with nitrous oxide and oxygen is very satisfactory. Especially is this the case in some eye operations, where vomiting may absolutely ruin the result.

Value of Atropine

The foregoing remarks have referred only to sedative premedicant drugs, but before concluding some mention must be made of the use of atropine. This is the most valuable premedicant of all, and should be used before all anaesthetic agents, and in all cases except where the basal metabolic rate is high. It inhibits the action of the vagus and diminishes mucous secretion. It should be given hypodermically in doses of 1/100 to 1/150 grain one hour before operation, except in the case of children, when it is better to give tincture of belladonna by the mouth to obviate the discomfort of the subcutaneous injection.

Summary

To sum up, for children and nervous patients some sedative is essential, but no one drug is suitable in all cases. Administration should never be done by the intravenous route, the rectal route being the most suitable and avertin the best of the drugs so used.

Atropine should be given except when the basal metabolic rate is high.

SINUSITIS IN CHILDREN*

BY

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The importance of sinusitis in children has been realized only in comparatively recent years. Though full sinus development may not be completed until about the fifteenth year, the ethmoidal cells, and to a lesser extent the maxillary antrum, are definite structures at birth, and by the fifth or sixth year all sinuses are large enough to be the seat of acute or chronic disease. Acute disease may have serious (or fatal) local complications, giving rise to retrobulbar neuritis, orbital cellulitis or abscess, cavernous sinus thrombosis, brain abscess, meningitis, or otitis media with all its complications. These, however, are beyond the scope of a short paper, and it is with chronic and subacute sinusitis that I wish to deal.

The frequency of chronic sinusitis has been stressed by so many writers, and is such a commonplace with all rhinologists, that details need not be repeated. The picture of a child with this disease is typical in many cases. A pale-faced, easily fatigued child with a running nose, nasal obstruction, a history of frequent colds, a loose cough, worse during the night and in the morning, anorexia, deficient general development, intermittent or constant hoarseness, with sometimes headaches (Valentina Wasson[1] states that this occurs in 20 per cent. of cases in older children), and a history of attacks of otitis media and cervical adenitis, is common. Night sweats and persistent temperature are frequently observed.

Causative Factors

The causes of sinusitis are deficient hygiene, defective feeding, bad climatic conditions, allergic state, exposure to local infections, nasal abnormalities, and hypertrophied tonsils and adenoids. These causes are variously emphasized by different observers. All are agreed that deficient hygiene—such as bad ventilation, damp houses or clothing—are definite factors in the causation of the disease.

Defective feeding has received a lot of attention. R. G. Turner[2] considers sinusitis to be a vitamin A deficiency disease, and has demonstrated great improvement in cases treated with carotene. Excess of starch and meat is likely to produce an acidotic tendency, and is deprecated by Luongo,[3] who prefers a diet of lacto-vegetarian food, which should be as much as possible fresh and unprocessed. He also considers that lack of calcium is a factor. Rea Ashley[4] considers hypothyroidism important in some cases, and has had good results by exhibiting small doses of thyroid extract or by using calcium gluconate and parathyroid.

Climatic conditions undoubtedly play a part. In Australia sinusitis is much more prevalent on the coast than in inland hilly country. Dr. E. M. Kent-Hughes[5] states that in Armadale, New South Wales, the condition is uncommon, and that children from the coast are very quickly cured by residence in that district.

Exposure to local infections is seen in the very frequent occurrence of sinusitis following constant colds where children at school infect one another, and one is constantly struck by the presence of sinusitis in different members of one family. Influenza and infectious diseases such as scarlet fever, measles, and pertussis are common causes. Hoopple and Cave[6] found sinusitis in all except one of a large series of cases of otitis media following scarlet fever. Nasal deformities, such as deviated septum, by interference with the normal drainage and ventilation of of the nose, are considerable factors.

TONSILS AND ADENOIDS

Hypertrophy of tonsils and adenoids is placed last as a cause, not because it is necessarily the least important, but because it is the one about which there is probably some difference of opinion. In most textbooks and articles on the subject it is frequently given as the most important cause, but I have long been of opinion that the possibility of its being an effect should be kept in mind. Lymphoid tissue is firmly believed to have a protective effect in that it deals with infection, being, to a certain extent, "the first line of defence." If it becomes grossly enlarged and chronically infected we can consider that it is losing in the fight, and has become a factor on the other side by causing obstruction and by acting as a sponge to hold infection. I agree with Cantor,[7] who does not advise removing tonsils and adenoids until he is satisfied that they are obstructing or "septic." The mere presence of tonsils and adenoids is not enough.

Allergic causes must always be kept in mind. Skin tests should be done by skilled allergists when practicable, and appropriate measures carried out.

Types Found in Children

In general, three types of chronic sinusitis are found in children: (1) suppurative; (2) hyperplastic; and (3) mixed suppurative and hyperplastic. There is probably never any infection of the sinuses without hyperplasia, and on the degree of hyperplasia depends, to a very large extent,

* Read in the Section of Laryngology at the Annual Meeting of the British Medical Association, Melbourne, 1935.

the operative measures necessary and the prognosis of sinusitis in children. In determining this, *x*-ray assistance is most valuable. From good films we get considerable information about the type of sinusitis, the possibility of fluid pus there, and, if we are treating the patient expectantly, can obtain invaluable information of the progress of the disease by repeating the *x*-ray examination at intervals.

Sequelae

Before passing to the treatment of sinusitis in children, we must consider the conditions that it may give rise to if it goes unchecked. Chronic bronchitis and bronchiectasis are certainly sequelae. It has been suggested that sinuses are infected secondarily from the lung, but this seems unlikely. It has been shown by Clive Eadie, using Watson-Williams's methods, that sinuses are always infected in cases of lobar pneumonia, but it is considered by him to indicate that the infection is a general one of the respiratory tract. However, in bronchiectasis, whether primarily or secondarily infected, satisfactory treatment of the sinuses is a great aid to treatment of the lung.

Gastritis and other bowel conditions also result. Arthritis, though perhaps not often in children, is commonly attributed to sinusitis. Retrobulbar neuritis, psychosis, and grosser brain and pituitary lesions have been demonstrated. Also the condition, if unchecked, may develop locally into chronic sinusitis with polypi in the adult or atrophic rhinitis.

Local Examination

There is very little to be said about the local examination that is not a rhinologist's routine. Anterior rhinoscopy will show swollen turbinates, frequently much mucus or muco-pus, but very rarely polypi. Posterior rhinoscopy, when possible, and examination of the pharynx frequently show streaky muco-pus, and one attempts at this time to form an idea of the extent of the hypertrophy of the tonsils and adenoids and of the lymphoid tissue of the posterior pharyngeal wall.

Palpation of the neck frequently reveals cervical adenitis. Transillumination is a test which does not usually give much information, although occasionally one forms the idea that disease of the antra is not gross when they illuminate well, and unilateral dullness is a sign of some value in older children, as it is in adults.

Treatment

In children under the age of 5 treatment is mostly medical, and calls for the assistance of a physician skilled in dietetics and child management. A diet of fresh food, to which cod-liver oil or haliverol may be added, is essential. Climatic conditions are usually difficult to combat, but when possible the removal of children to a high dry inland locality is extremely beneficial, even if their stay be confined to the winter and spring months, when acute respiratory infections are commonest on the coast of Australia.

Local treatment may be grouped under three main headings: (1) applications; (2) antrum puncture and lavage; and (3) operation. At present the most frequently used applications are perhaps 1 per cent. solutions of ephedrine and colloidal silver solutions. I use 5 per cent. neosilvol, and in younger children this is best applied in the form of drops. To older children 10 per cent. argyrol tampons can be given once a week. It is necessary mildly to cocainize the nose, not using any adrenaline for fear of creating too marked a reaction, and then to apply wool tampons soaked in 10 per cent. argyrol in the region of the middle meatus on each side. They can be left there for ten minutes and then removed. This produces a copious flow of mucus or muco-pus. This treatment can be carried on for two or three months at a time with benefit.

PUNCTURE OF THE ANTRUM

Antral puncture and lavage is a very great help, but in younger children it cannot be carried out very often, because a general anaesthetic is necessary; even so, it is well worth while, especially if there be any muco-pus in the return. In older children a local anaesthetic will suffice, and in most cases the procedure can be repeated weekly without too much upset to the child. The effect of this treatment can be watched by noting the general health of the patient, by inspecting the return from antral lavage, and by repeating the *x*-ray examination. A single chin–nose film gives a very good idea of the progress of the case. If tonsils and adenoids are hypertrophied they should be removed early in the treatment, and advantage can be taken to wash the antra at the same time.

INTRANASAL ANTRUM OPERATION

In a great many cases, however, these measures will not suffice. Either the child finds them too troublesome or else he is not improving at all, and something further should be done if possible. In my experience intranasal surgery in children under 5 has not been at all successful. In older children a deviated septum should be resected, but only if it is a very gross deviation. Removal of turbinates is not popular in Australia, although if the anterior end of the middle turbinate is polypoid it should not be spared.

Improved drainage and ventilation of the sinuses can be obtained by intranasal antrum operation, and results are very satisfactory in most cases. This operation should not be approached too casually. Done roughly, it can easily render the condition much worse, or, at best, fail to achieve its object. An opening into the antrum is made in the inferior meatus, which is under cover of the inferior turbinate. This latter structure, if damaged in the operation, is certain to adhere to the new opening and occlude it. Also, the opening itself must not be ragged, for the same reason. The use of burrs or instruments likely to result in the formation of small bony fragments cast loosely either into the antrum or about the nose is deprecated. The bone at the lower limit of the antro-nasal wall near the floor of the nose is diploic, and any grinding action there is likely to produce reaction and subsequent adhesions. My practice is to apply, under general anaesthesia, 1 in 1,000 adrenaline solution to the region, and then to pierce the antro-nasal wall under cover of the inferior turbinate with a curved semi-sharp elevator, easing the inferior turbinate mesially at the same time. The elevator is moved up and down several times and then removed. An alligator type of Luc's forceps is next used to bite backwards, the movable blade of the forceps being pushed into the hole made by the elevator. The pieces removed must be examined, and these should include: (1) the antral mucosa, which is usually polypoid; (2) bone; and (3) nasal mucous membrane. Care must be taken to bite back evenly, but not too far for fear of damage to the naso-palatine vessels. A curved Seymour Jones forceps is used for biting forwards, the same care being taken to get the three layers and to prevent comminution. After this operation it is possible to wash the antra if necessary, though this is not done as a routine.

Radical operation to the antra is very rarely carried out, and then only in older children with gross polypi. In suppurative cases with evidence of spread from the ethmoid or frontal sinuses an external operation may be

necessary. Treatment by vaccine, either autogenous or stock, or by injections of immunogen or collosol manganese has not, in my experience, had the success hoped for.

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A PRELIMINARY NOTE ON LOW-VOLTAGE X-RAY THERAPY

BY

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During recent years one of the most interesting developments of radiation therapy has been the use of higher and higher voltages in *x*-ray treatment, and it is perhaps a little surprising to find at the same time a parallel development taking place in the field of relatively low voltages of the order of 50 kV. It is true that this potential could be reached many years ago, but technical progress in *x*-ray tube and generator design, coupled with the "shock-proofing" of the equipment, have opened up new fields of usefulness, of which advantage is now being taken. In addition, dosage may now be measured and accurately controlled in a way previously impossible, so that even the very high dosage rates available from such equipment as we describe below now present little danger or difficulty in the handling.

Schaefer and Witte[1] have employed *x*-ray tubes for gynaecological purposes which may be inserted into the body cavities, while Sauerbruch, Chaoul, and Adam[2] have used *x*-ray tubes at small focal skin distances with considerable success. It is chiefly the work of Chaoul[2 3] which has led to the experimental investigations described below.

We do not wish to discuss here the theoretical justifications of such techniques in treating lesions relatively near the surface, but we may note what, as stated by exponents of the method, they are.

1. There is no difference between the clinical effects of the same dose of *x*-radiations of different wave-lengths, the important factors being the energy absorbed per cubic centimetre and the time spacing of the irradiations.

2. The healthy surrounding tissues should be spared irradiation as much as possible, so as to expedite and aid subsequent repair, while

3. The distribution of radiation in the tissues with small focal skin distances is similar to that obtained with radium surface applicators and "bombs." In addition, the high dosage rates available from *x*-ray apparatus make possible the treatment of a large number of patients in a given time with an initial financial outlay which is small compared with that involved in the purchase of the equivalent radium. The difference due to dosage rate is supposed to be of little importance provided the fractionation of the radiation is maintained.

Owing to the generosity of Sir Herbert Austin, who provided clinical and experimental apparatus, we have recently had the opportunity of treating a number of malignant and non-malignant conditions with a low-voltage *x*-ray plant of the type used by Chaoul. A similar plant, again thanks to Sir Herbert Austin, is in use in the General Hospital, Birmingham, under the direction of Dr. Bromley. Close co-operation has been arranged between the Birmingham and London experience. We have, in addition, made physical investigations of the radiations.

The present note is an account of first impressions. It cannot be too strongly emphasized that we have as yet not had time to see more than the preliminary stages of results, but these seemed of sufficient interest and promise to justify the publication of some information on the subject.

Physical Conditions of Irradiation

The *x* rays were generated at a constant voltage of approximately 60 kV, with 4 mA tube current. The tube is so designed as to have the source of radiation at one end of an earthed metal tube, the rays emerging through the target of gold-plated nickel and the water-cooling jacket. These normally constitute the sole filters employed, in all equivalent to approximately 0.2 mm. nickel. The mean wave-length is roughly 0.32 A.U. A series of physical measurements of spectra, half-value layers, "back-scatter," percentage depth doses, etc., have been made, and it is hoped that they will be published shortly. Only a few of the results are given here.

The field on the irradiated skin is limited by metal applicators slipped on to the end of the tube, these applicators also ensuring the focal skin distance desired. The latter is usually 5 cm. or 3 cm., while the applicator may be either circular or elongated according to the lesion to be treated. Applicators of special shapes and sizes are easily constructed in a workshop of moderate resources. With 5 cm. focal skin distance and 4 cm. diameter circular field, the depth doses along the centre axis of the beam are as follows:

Depth in cm.	Percentage of Surface Dose
1	68
2	44
3	29
4	19

With smaller fields and smaller focal skin distances the values are naturally less. For instance, with 3 cm. focal skin distance at 1 cm. deep we have 53 per cent., at 2 cm. deep 28 per cent. of the surface dose. It is interesting to note that for the first 3 cm. of tissue there is fair agreement between the depth doses of the *x*-ray beam using 5 cm. focal skin distance and those obtained with a radium "bomb" at 4 cm. focal skin distance. For longer depths the radium, of course, gives somewhat larger percentage values. The dosage rate in air at 5 cm. focal skin distance, 60 kV and 4 mA, is approximately 110 *r*/min., while with "back-scatter" this normally increases to about 130 *r*/min. All doses are defined with back-scatter. This dosage rate is approximately twenty-five times that obtained from a 1-gram radium "bomb" at the same focal skin distance.

Clinical Effects

The daily dose per field used by Chaoul, and also by us, is 400 *r* with back-scatter. The total dose per field is not arbitrarily selected, but depends somewhat on the reaction of the lesion to treatment. Usually, by about the fourth day the skin immediately surrounding the lesion, and purposely included in the field, has developed a mild degree of erythema, while during the next few days a pigmentation often occurs. The extent of both erythema and pigmentation depends very markedly on the usual factors, such as region of the body, condition of the skin, vascularity of the subcutaneous stratum, coloration of the patient, etc. The edge of the erythematous area is very sharply marked, corresponding to the rim of the applicator, and although measurement shows often a 40 per cent. difference between the dose received at the

centre of the field and that at the edge, the skin reaction appears quite uniform over the whole area. Regression of the lesion is occasionally noticeable even by the third day.

The total dosage is usually 5,000 to 6,000 *r* per field, spread over about fifteen days, but irradiation up to this limit is continued until the erythema is well developed. The resulting skin reaction appears similar in all respects to that following radium treatment, with the exception of a shorter period of development. After intense irradiation skin sloughing results, but epithelialization rapidly proceeds from the periphery to cover the area with a pale scar. The sharply localized action of the beam renders the patient free from constitutional after-effects, so that a number of areas may be treated at one session, limited only by such factors as time and convenience. Even as many as six separate fields require only about twenty minutes to complete, the 400 *r* per field being obtained in about three minutes.

Our experience in the matter of resultant skin reactions and subsequent healing have been in close accord with those described by Chaoul and his collaborators. It is also of considerable interest to note the rough agreement between the dose in "roentgens" of long wave-length *x*-rays with that of gamma rays required to produce a similar reaction in lesion or skin.

Indications

The following types of cases readily (according to Chaoul) admit of treatment by such low-voltage therapy.

Skin cancer, such as rodent ulcer and epitheliomata. Accurate measurement of the lesion is not essential, and the applicator is chosen of suitable size and shape adequately to cover the lesion. If the latter does not exceed 4 cm. in diameter a single field will suffice, but for larger areas multiple fields become necessary. This technique is being developed. We have treated several cases of this type with initially satisfactory results.

Buccal Cancer.—This comprises squamous epitheliomata of lips, floor of mouth, alveolus, tongue, cheek, palate and tonsil, pharynx. The applicator is readily introduced and clamped into position, a gag being quite unnecessary. We find in agreement with Chaoul that the short exposure of three minutes is readily tolerated by the patient, even when the applicator is applied directly to the post-pharyngeal wall. A local anaesthetic is sometimes but rarely required. Once the primary lesion has been adequately irradiated, lymphatic drainage areas may be treated with more penetrating *x*-radiations should prophylactic measures be regarded as indicated. From Chaoul's results up to this early date it appears that this group is especially suited to low-voltage *x*-ray treatment. We may remark that in our small experience such advantages as complete absence of reaction in the tongue after treatment of, say, lip carcinoma, and absence of action on the salivary glands, both owing to the strict localization of the beam and short time of actual treatment per day, are matters of more than little importance to the patient.

Mammary Cancer.—For this type of case the method has a limited sphere of usefulness. Cases which have reached the fulminating stage can be greatly benefited. Post-operative recurrent nodules yield readily to treatment. Owing to the superficial nature of the dosage distribution there is little danger of lung fibrosis, even when large doses are administered to a thoracic wall stripped of adipose tissue. Naturally, elimination of any group of recurrent nodules does not prevent the appearance of other nodules in the mammary area, but the patient is spared unnecessary suffering and disfigurement.

Cancer of the Cervix.—A series of over a hundred cases have been treated by Witte and Schaefer, using slightly higher voltages and somewhat different technique. The applicator is introduced per vaginam and directed on to the lesion. Angulation of the applicator makes it possible to irradiate growths which have advanced to the vaginal vaults. The technique, of which we have no experience, is more specialized, but results equal to those obtained with radium are claimed.

Deep-seated Lesions.—These lesions present a notable opportunity for co-operation between surgeon and radiologist. Thus in the case of cancer of the rectum a preliminary operation may be performed, resecting the coccyx and the lower portion of the sacrum after the establishment of colostomy. The wound is plugged and kept open for the duration of the treatment. The applicator may be introduced into the cleft with the aperture directly on to the tumour surface. The extension of the method to other sites, such as stomach, oesophagus, larynx, or prostate, may easily be visualized, provided a satisfactory surgery of access is developed and tumours rendered directly accessible to irradiation. We may finally note that benign lesions react in a manner very similar to that experienced with gamma rays.

Conclusions

Our experience of this low-voltage method is at the moment limited to the treatment of some forty cases, including cancer of the lower lip (2), of floor of mouth (2), of tongue (1), of pharyngeal wall (1), rodent ulcers (several), epitheliomata of skin (5), primary breast cancer (4), recurrent breast cancer (several), leucoplakia vulvae (1), urethral caruncle (1), recurrent melanotic sarcoma (1), pigmented hairy moles (4), cancer of rectum (1), keloid (2).

There can be no doubt that the method has many advantages in its own field, and it is well to remember that the latter is as yet scarcely defined. The complete and accurate control of dosage in regard both to amount and to location, the large number of fields it is possible to irradiate in a short time, the extremely sharp limitation of the beam and consequent avoidance of reaction in structures adjacent to those being treated, are immediately obvious on making use of low-voltage *x*-ray therapy. How the ultimate results of this technique will compare with those more commonly now in use we cannot say, but at least it deserves careful and prolonged study.

References

[1] Schaefer and Witte: *Strahlentherapie,* 1929, xxxiii; ibid., 1932, xliv.
[2] Sauerbruch, Chaoul, and Adam: Ibid., 1933, xlviii, 31.
[3] Chaoul: Loc. cit.; ibid., 1935, lii.

The National Association for the Prevention of Tuberculosis has issued a list of its propaganda publications and cinematograph films; several of the leaflets have been recently revised, and new films are being made. One of the newer films, which describes the work in progress at the Burrow Hill Sanatorium Colony for Boys, was selected by the British Film Institute for exhibition to a League of Nations committee at Geneva as being the best British production of the year in regard to technique and propaganda value. Films more suitable for exhibition to medical practitioners and others with special knowledge deal with the pathogenesis of the disease, the part played by the nurse in the campaign, and the measures taken in an open-air school. Small pamphlets are available for distribution to patients or parents; they deal with such subjects as the protection of children, the diet in tuberculosis, disinfection, and after-care. Leaflets and posters are supplied for display in consulting rooms and elsewhere. Applications for the list and specimen copies should be addressed to the offices of the N.A.P.T., Tavistock House North, Tavistock Square, W.C.1.

Clinical Memoranda

Penetrating Wound of Eye—Cure of Prolapsed Iris without Operation

The following note is a plea for the treatment of most cases of prolapsed iris by frequent insertion of eserine drops before operation is tried.

W. B.'s left eye was struck with a meat skewer on November 18th, 1933, and he was found to have a prolapsed iris. The corneal wound extended to the limbus below, but the prolapse was 1/8 inch from the centre of the cornea. One per cent. eserine drops were inserted immediately and every quarter of an hour after for three hours in the hope of pulling the iris out of the corneal wound.

The patient was taken to a private hospital to be operated on for excision of the prolapsed iris, but to my surprise it was found that the prolapse had gone back. Examination with the corneal microscope confirmed the fact that the iris was quite free from the inner corneal wound. He was discharged from hospital next day, and was ready to work in a fortnight. There was no sign of injury to the lens, but he was warned of the slight possibility of traumatic cataract.

Prolapsed iris is the commonest result of wounds of the eye caused by pencils, crackers, sharp-pointed instruments, or bullets. It is a very important condition owing to the danger of infection of the eye. As long as the iris remains in the wound it provides an easy channel for germs to enter the eye, the iris acting as a wick. After being a few hours in the wound the iris becomes adherent to both lips of the wound on the inner side of the cornea.

The recurrence of an adhesion to one or the other lip of the corneal wound is a common sequel to an operation for separating the iris from the cornea (division of anterior synechia). A persistent anterior synechia is often a constant source of irritation to the eye owing to the contraction and dilatation of the pupil. If the wound is in the neighbourhood of the ciliary body there is a danger of sympathetic ophthalmia destroying the sight of the uninjured eye. The treatment generally advised for this condition is atropine drops to dilate the pupil in the hope of drawing the iris out of the wound and an immediate operation for excision of the prolapsed iris.

I have never heard of a case of prolapsed iris which has been replaced by the use of atropine drops alone. Eserine is scarcely mentioned in the literature. Its use is suggested in cases where the iris is bulging peripherally, but owing to the slight prospect of replacement by drugs alone the operation of excision of prolapse is urgently needed. In this case the iris was bulging 1/8 inch from the centre of the cornea. Eserine was inserted as soon as the patient was seen, and every quarter of an hour for three hours. If it had appeared that the iris was not going back with eserine, homatropine and atropine would have been used, and possibly would have now more chance of success than if eserine had not been used first. In this case atropine was used twice daily two days after the accident to help the healing of the corneal wound and to lessen the possibility of iritis.

I have on two occasions removed a metallic intraocular foreign body in cases where the *x*-ray report was negative. It has been found that the best way of making a radiographic examination of an eye for a foreign body is to use a small *x*-ray film about 2 in. by 1 in. as used by dental surgeons. This film is held by the patient on the inner side of his eye at the base of his nose. The *x* rays are then passed from the other side of the orbit. In this way a radiograph of the front part of the eye can be obtained without penetrating any bone. Smaller foreign bodies can be detected than is possible with the ordinary method. It is much less expensive, costing about 7s. 6d., whereas the ordinary *x*-ray of the skull costs about two guineas. A case examined by the ordinary method was reported to be negative, but the foreign body was shown later on a dental film.

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The Use of Leeches in Eye Diseases

The following cases may be of interest to your readers, as I have found leeches to be of great use in the treatment of iritis, glaucoma, and intraocular haemorrhages.

A patient, aged 50, was first sent to me by Dr. M. Torrance of Mile End Road four years ago. She was then worrying whether she had glaucoma, as she had complained of haloes round the light. I, however, could find nothing pathological. The visual fields, tension, and fundi were normal, and beyond ordering her a change of glasses and advising her to be seen again, if necessary, nothing further was done. She was a hypermetrope. Last summer she returned with the same story, but again there was apparently nothing wrong. That was on a Thursday afternoon. On the Saturday afternoon she returned with a typical attack of acute glaucoma. The eye was very congested, the tension raised, the vision a quarter of what it was two days before, and the pupil catlike in shape. The media were hazy, and one could make out some cupping of the disk. Eserine was ordered every two hours, and a couple of leeches to the left temple. On visiting her at 9 o'clock that night, except for the congestion, the eye was normal in tension and the patient comfortable. She was much better and refused to have an operation. Two days later the eye was normal again in appearance and in vision. She was advised to keep on eserine, but I have not seen her since.

Another patient had extensive retinal haemorrhages in both eyes. Her age was 63, and she had a high blood pressure. She had pretty well lost the sight of the right eye, as the result of a previous attack; but the left, after treatment with leeches, rest, and potassium iodide, improved from 6/60 to 6/18.

A third patient with a bad iritis, gonorrhoeal in origin, had been ill for two weeks. He had had every form of treatment—atropine, hot bathing and fomentations, and anti-gonococcal injections—prior to seeing me. A couple of leeches were ordered, as it seemed the only thing he had not had. Two days afterwards the whole of the congestion had cleared up, and after a further week of atropine he was cured.

A further case was a lady with a black eye. The lids were so congested one could hardly separate them. She naturally wanted to get it better quickly, and had tried cold compresses and other treatment. Two leeches were ordered, and within a day the swelling had gone, and a few days afterwards the eye was normal.

Leeches being naturally repulsive to patients, I generally pick up the leech with a pair of forceps from the box in which the chemist sends it, and put it in a tube. It is applied to the cleaned temple, after putting on a spot of milk or cream first. One can interpose a sheet of paper between the eye and the leech, so that the patient does not see what is happening, and the leech drops off after it is full.

Blisters, blistering fluid, or artificial leeches are also used in certain acute and chronic eye affections. Formerly ears were pierced and setons were used, as described in Du Maurier's novel, *Peter Ibbetson*, where the artist was going blind. These are all useful as counter-irritants, but better results are obtained by leeches.

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Reviews

TUBERCULOUS ADENITIS

Tuberculosis of the Lymphatic System,[1] by Richard H. Miller, is a valuable summary of transatlantic views on a subject of very great importance. The author says in his preface: "My experience has been, not in the laboratory, but at the bedside and in the clinic," and indeed the best parts of the book are those in which, writing of clinical things from a wide experience, Dr. Miller sets forth his considered conclusions as to diagnosis and treatment. Chapter IV especially, on the anatomy of the lymphatic system, strikes the reviewer as of much value to all those who may have to deal with tuberculous adenitis from the practical point of view of the clinical worker, and the part dealing with cervical glands is also particularly good.

Speaking generally, the author holds the opinion that tuberculosis starts as a disease of the lymphatic glands; a sound concept, which merits the stress here laid upon it as a basis for the comprehension of the pathogenesis of the disease. He seems to go too far, however, in the following: "It is well to remind ourselves here that, whereas lymph nodes or lymph tissues are always somewhere involved whenever there is tuberculosis in the body, the lymph vessels themselves are never the seat of clinical tuberculosis." Cornet and others showed clearly many years ago that tuberculous disease of the thoracic duct or of the lymphatic duct was often the source of a fatal miliary bacillaemia. The treatment of cervical lymph nodes is well described in Chapter VI, and here the wise line is taken that "it is absolutely impossible to lay down set rules to cover all patients," and so the various methods of therapy are first discussed and then their application to different types of cervical adenitis considered. While admitting that conservative treatment may often be the soundest line, Dr. Miller makes his preference for surgical intervention quite clear. He will find many to agree with his general view that it is often well to be rid of a tuberculous cervical gland or glands, in spite of the possibility of a recurrence and of the invariably considerable operative difficulties. In his advocacy of incision and drainage of tuberculous cold abscesses, however, he appears to be on rather dangerous ground. In this connexion it is curious to find no reference to the observations of Sir Henry Gauvain; and, indeed, it might be worth the author's while to read over the paper by Gauvain and Calvé in the *Lancet* of March 5th, 1910 (p. 635), where the technique of aspiration is so well described.

The references are conveniently given at the end of each chapter, but there are some strange omissions. The work of Baréty receives no mention at all. The illustrations are excellent. The book is to be thoroughly recommended, but the advice as to treatment need not be slavishly followed.

THE LABYRINTHS AND EQUILIBRIUM

Professor Rademaker of Leyden has written in his book *Réactions Labyrinthiques et Equilibre*[2] an account of the mechanism by which the labyrinths maintain equilibrium, a large part being based upon his own observations and researches. The author does not concern himself with the ordinary caloric and galvanic tests for labyrinthine activity, but makes a detailed study of the reflex movements of the limbs and head in response to changes of position. His analysis has been much assisted by the use of cinematographic records, many of which are reproduced. The modifications in the muscular reactions after unilateral or bilateral labyrinthectomy are well shown by this method. The study is also a clinical one, and the responses of patients to tilting movements are described. Professor Rademaker has found in this way that patients suffering from tabes or cerebellar disease show normal labyrinthine responses in spite of their ataxic symptoms.

The book represents a complete review of the works of previous investigators, including, naturally, the observations of Magnus and de Kleyn, and is on similar lines to the work on the physiology of the vestibular apparatus by M. Camis. It may not be of much practical value to the otologist, but represents an essential study in physiology and neurology.

MEDICINE FOR EVERYMAN

An hour spent in random sampling of *Everyman in Health and Sickness*,[3] edited by Dr. Harry Roberts, should suffice to inform the experienced reader that this is in an entirely different category from the general run of works that purport to instruct the lay public in the principles and practice of medicine. It is in the first place a most attractive production, adapted in typography, illustrations, paper, and binding to its double function as a book to be read through and to be referred to at need. Some of the drawings, indeed, are of such distinction that one wonders why the anonymity that rightly shrouds the identity of the editor's collaborators should have been extended to the artist also. Secondly, what is no less unusual, it is well written, uncommonly like literature in some sections, and in none falling below a commendably high level of technical competence.

But the third distinguishing quality is the most important of all: the contributors knew exactly what they were about. This presence of a guiding purpose, of a recognizable and clearly defined philosophy of what constitutes desirable instruction for the general reader, gives this work by many hands a unity that to a greater or less degree is lacking in every other work ranging over the same field. In writing their contributions the authors were animated by the conviction that a little learning, of the right kind and imparted in the right way, is an excellent thing; and that the risk of producing hypochondriasis on the one hand, or overconfidence on the other, could be avoided by adapting their instruction to the needs and intellectual background of the public for whom it was intended. They do not, in other words, follow the popular plan of offering to the general reader summaries of material that suitably has a place only in textbooks and other works for medical students and practitioners.

"The aim," writes Dr. Roberts, "is to assist the reader to understand the machinery of his body, to acquaint him with the observed laws of its harmonious working; and to help him to preserve that harmony within himself, and between himself and his surroundings, which is the very essence of health, and to enable him to recognize those slight aberrations from the normal which, when neglected, have sinister possibilities. In a word, this volume does not set out to create that crazy Utopia in which *Everyman* is *his own doctor*. Rather it seeks to make the occasions for the doctor's intervention less frequent; and, by promoting the intelligent co-operation of the patient, to render these interventions more effective."

From standards that are so high there must inevitably be some lapses. In an endeavour to cover the whole field of medicine in a single volume—even though it runs to over 300,000 words—it is not surprising that the exposition of some subjects has been over-abridged, a defect which

[1] *Tuberculosis of the Lymphatic System*. By Richard H. Miller, M.D., F.A.C.S. London: Macmillan and Co., Ltd. (Pp. 248; 29 illustrations. 17s. net.)

[2] *Réactions Labyrinthiques et Equilibre. L'Ataxie Labyrinthique*. By G. G. J. Rademaker. Paris: Masson et Cie. 1935. (Pp. 262; 124 figures. 80 fr.)

[3] *Everyman in Health and Sickness*. Edited by Dr. Harry Roberts. London: J. M. Dent and Sons Ltd. 1935. (Pp. xxvii + 739; 116 illustrations. 12s. 6d. net.)

could perhaps be righted by eliminating much of the material in the long section entitled "Everyman in Sickness." This, with its lists of signs and symptoms, bears a closer family likeness to the "popular home doctor" than the editor's statement of aims and the spirit of the rest of the work would have led one to expect. True, it does not encourage self-medication, but it may tempt some readers to have a cut at diagnosis. In the space saved by compressing this section it would be possible, too, to treat more fully of the departures from normal health that the reader would do well not to ignore; though having made this criticism it would be unjust not to draw attention to the admirable but brief section entitled "Some Danger Signals."

If, however, Dr. Roberts and his collaborators have only partly succeeded, it is because they have set themselves standards that no one has attempted before. They have produced far and away the best non-technical work that is available in English on the care of the body and mind in health and sickness. Those readers in particular who themselves have faced the problems of introducing difficult ideas to an uninstructed public, and have wrestled with the task of making their exposition at one and the same time simple, unambiguous, and unpatronizing, will appreciate the technical skill that went to the preparation of this volume.

TREATMENT OF RHEUMATISM IN GENERAL PRACTICE

The second edition of Dr. W. S. C. Copeman's *Treatment of Rheumatism in General Practice*[4] will be welcomed by the medical profession. At a time when manuals on chronic rheumatic disease are appearing on all sides it speaks well of a small book that a second edition should be called for in the comparatively short period of two years. Those who are not familiar with the first edition will find an eminently sane and readable exposition of the diagnosis and treatment of these conditions, which like the poor are always with us, and which make such demands on our patience and optimism.

Since in general the majority of sufferers from chronic rheumatism must be treated by the general practitioner it is important that he should be provided with a guide both as to what he can do for them within the scope of his own practice, and how he can maintain a reasonable sense of proportion in face of the astounding claims as to the efficacy of various nostrums which arrive by every post. In this book he will find such a guide, which will demonstrate to him that much can be done, but will prevent him accepting blindly the unfounded claims of many enthusiasts, which will only lead to his disappointment and sometimes to his discredit. The present edition includes a chapter on prognosis, which will be of great use, while new paragraphs are added in the treatment section on gold salt therapy, bee venom, histamine, and intravenous calcium. All of these methods still require to prove their usefulness, but gold, bee venom, and calcium seem to be of some promise in rheumatoid types, while success has been claimed in fibrositis for histamine, especially when administered by ionization.

It is interesting to note how the pendulum is beginning to swing away from the universality of focal infection as a causal factor and of vaccines as a therapeutic agent. The efficacy of various physical methods is dealt with, and the use of short-wave diathermy is the most recent method to be discussed. Dr. Copeman urges the wider use of manipulation by orthodox practitioners and points out the advantages of evipan as an anaesthetic for this purpose. He rightly stresses the fact, however, that manipulation must be most carefully and wisely used if the last state of the patient is not to be worse than the first, and that unless the patient himself is prepared to co-operate with courage and perseverance after the initial adjustment has been carried out the manipulation had much better be left undone.

With this book to refer to the practitioner will have little excuse for not offering to his rheumatic patients the means to considerable alleviation of their troubles if not to complete cure, though whether the patient will accept the arduous discipline which is necessary if good results are to be obtained and will ignore the will-o'-the-wisps so freely offered to him in the daily press is another matter.

[4] *The Treatment of Rheumatism in General Practice.* By W. S. C. Copeman, M.A., M.B., B.Ch., M.R.C.P. Second edition. London: Edward Arnold and Co. 1935. (Pp. 228. 9s. net.)

A DIALOGUE IN BIOLOGY

The School of Biology,[5] by Dr. Curt Thesing, translated from the German by Eden and Cedar Paul, is a remarkable book. The author disclaims it as a textbook, and in his preface describes it as "rather a work of entertainment: light literature which aims simultaneously at imparting information, a sort of biological Reading without Tears." Yet it contains more information on general biological matters and more complete exposition of main biological principles than any of the ordinary textbooks of biology. It is cast in the form of twenty-one dialogues between a professed teacher of biology and an intelligent student, supposedly without any previous knowledge of the technicalities of the subject. The reader soon gets used to the dialogue form, and finds, indeed, that it is not without many advantages, allowing easily of repetition where necessary and of digression where convenient. The general format is, however, not very attractive, and the numerous cross-headings between and in the middle of paragraphs become irritating and sometimes confusing. The ground covered is very large, from "the origin of worlds," through the geological strata and their fossil content, to the development of man. The various phases and factors of organic evolution are discussed; the influence of environment and adaptation, of enzymes and hormones, is considered; and the mechanism and laws of heredity are explained. The description of types of organisms is purely incidental, and emphasis is placed upon the fundamental facts and features of plant, animal, and human life. No attempt is made, however, to deal with its psychological aspects.

As Professor Munro Fox observes in a statement quoted on the cover, "the book deals with almost all the main lines of thought in biology." He says: "In reading through the manuscript I was unable to find any errors of fact or of interpretation." The present reviewer, though far less qualified to speak with any authority, would rather say that there is no statement of fact or of opinion for which there is not some evidence or justification. There are, however, some statements which in this country would not be made so dogmatically, and some alternative interpretations or conclusions which have been ignored. As mere incidental examples one may name the importance seemingly attached to the pineal gland and its secretion, the acceptance of American sterilization statistics at their face value, and the one-sided and much too simple discussion in the section entitled "Eugenic Applications." Allowance may be made, in a few matters such as these, for a difference between the German and the English point of view or method of presentation; and it remains that Dr. Thesing's book is a wonderful production, alike for the extent of ground which it covers, its accuracy of detail, its clearness of exposition, and the extremely interesting manner in which every variety of biological question is set out and discussed.

[5] *The School of Biology.* By Curt Thesing, M.D. London: G. Routledge and Sons, Ltd. 1925. (Pp. 368; 91 figures, 1 table. 15s. net.)

Notes on Books

Major C. Lodge Patch, medical superintendent of the Punjab Mental Hospital and lecturer at the King Edward Medical College, has written a *Manual of Mental Diseases*[6] for students and practitioners in India. The author does not attempt to deal with the pathology and psychopathology of mental disease. His aim is to give the reader a sound and practical knowledge of the psychoses and their treatment. The classification of the various forms of mental disease follows closely the teaching of Kraepelin. The book does not call for special comment, as it is written on conventional lines. At the same time it is evident that Major Patch is deeply interested in his work, sympathetic to his patients, and anxious to stimulate his students to take a real and permanent interest in the problem of mental disease.

L'Année Electro-radiologique,[7] by Dr. Morel-Kahn, covers the work done during 1934. It is the opinion of the author that electrotherapy does not occupy the place in medicine that it deserves, and he attributes this to the fact that new methods are published in radiological journals read only by specialists in this branch of medicine. He hopes, by means of this publication, to place before the general practitioner the various methods employed in electrotherapy, and to show him the help which can be derived from them. Under the title "electrotherapy" he includes radio-diagnosis, general radiotherapy, and electrology, these being the three main sections of the book. The subjects discussed at various congresses during the year are briefly dealt with in a fourth section. He lays great stress on the importance of bringing before the practitioner the discussions that took place at these congresses. The author realizes that a work of this kind must of necessity be incomplete, but he has endeavoured to make it as practical as possible, omitting all unnecessary detail, most of the text being devoted to recent advances and progress made during the year. The illustrations, though not numerous, are all of good quality. A more complete index would enhance the value of the book.

In a little work entitled "The Doctor's Knigge,"[8] after the eighteenth century baron of that name who wrote a famous book on etiquette, Dr. C. Seyfarth, extraordinary professor of internal medicine at Leipzig University, and senior physician to the medical department of St. George's Hospital in that city, gives some excellent advice as to the duties, responsibilities, and behaviour of hospital residents.

The *Transactions* and twenty-fourth annual report of the St. John's Hospital Dermatological Society have now been published in pamphlet form (Bale, Sons & Danielsson, 2s. 6d.). They include papers by Mr. Norman Lake, on the surgery of the sympathetic nervous system in relation to cutaneous lesions; by R. R. Wettenhall, on the practice of dermatology in Melbourne; by Mr. Philip Gregory, Ph.D., on the parasitic activity of the ringworm fungi; and Lord Horder's Prosser White Oration on pruritus.

There are many pieces of apparatus designed to assist in the training of squinters. An *Amblyopia Reader* has been prepared by Dr. Margaret Dobson, with the somewhat portentous subtitle of "A System of Eyesight Development" (Rembrandt Photogravure, Ltd., Drury House, Russell Street, W.C.2). This is a reading book with various-sized types and pictures. It is planned on the well-known test for the detection of malingering, in which there are set up in a frame hung in front of a window letters forming the word FRIEND, in which the FIN are in green glass and the RED in red glass. On the person to be tested spectacles are placed, one side with red glass, the other with green. If he can see the whole word it is certain that he sees with each eye. This test is the basis of the book. Part of the pictures and type is printed in black, the rest in orange ink. A red filter is placed over the better eye of the patient, both to dim brilliance and to cut out the orange type, and compel the other eye to see this if the parti-coloured print is to be intelligible. It would seem that the high degree of ocular balance necessary to hold such difficult printing in proper view, and also the disturbing influence of the phenomenon known as the struggle of the retina, would limit the utility of these exercises to a comparatively few patients.

Longmans Green and Co. have now published a new edition, at 5s., of Dr. Philip Gosse's charming book about natural history in front line trenches—*Memoirs of a Camp Follower*—of which a review appeared in these columns on April 14th, 1934.

[6] *A Manual of Mental Diseases. A Textbook for Students and Practitioners in India.* By Major C. J. Lodge Patch, M.C., I.M.S. London: Baillière, Tindall and Cox. (Pp. 332. 10s. 6d.)

[7] Paris: Masson et Cie. 1934. (Pp. 232. 40 fr.)

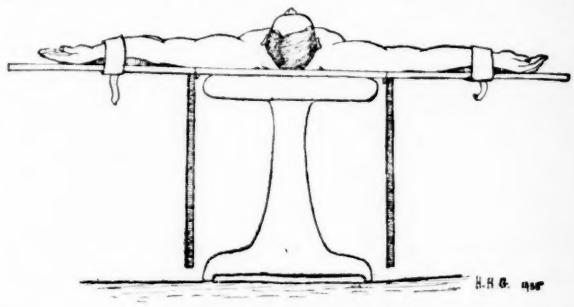
[8] *Der "Arzte-Knigge."* By Dr. C. Seyfarth. Leipzig: Georg Thieme. (Pp. 100. M. 2.60.)

Preparations and Appliances

AN ATTACHMENT FOR THE OPERATING TABLE

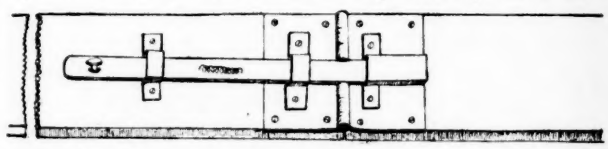
Mr. H. H. Greenwood, F.R.C.S., M.B., B.S. (G.W.R. Hospital, Swindon), writes:

The position of a patient on the operating table is important to the anaesthetist, the surgeon, and, above all, to the patient. Tucking the patient's hands beneath the buttocks embarrasses all parties to the affair in hand. The attitude shown in Fig. 1 leaves the chest free to move easily, and the arms of



the patient do not incommode the surgeon. I have used this simple apparatus now for many years. It is so simple and so effective that others may care to adopt either this or some modification of it.

The three segments of the strip of wood are four inches in breadth and twenty-four inches in length. They can be moved up or down the operating table as required. The side pieces hang down as shown. As soon as the patient is anaesthetized they are lifted, the bolt shown in Fig. 2 being drawn back.



When the sections are in alignment the bolt is released, and by a concealed strong spring is automatically shot into the socket. The concealed spring is not essential: a smoothly acting well-fitted bolt is adequate. A small pad is placed beneath the lower end of the forearm, at which point a broad strap or buckle holds the limbs in position. On completion of the operation the bolt is drawn back and the side section drops on its hinge to the vertical. The apparatus was made for me in the G.W.R. Works by courtesy of the Chief Mechanical Engineer, Mr. C. B. Collett.

HISTIDINE TREATMENT

"Hypoloid" brand histidine hydrochloride, a product of Burroughs Wellcome & Co., Snow Hill Buildings, E.C.1, makes available a sterile 4 per cent. solution of histidine hydrochloride, for immediate use, in cases of gastric and duodenal ulcers. The treatment comprises daily intramuscular or subcutaneous injections for three weeks, of 5 c.cm. of a 4 per cent. solution of histidine hydrochloride. No other medication is necessary, and a minimum, if any, of dietary restrictions. "Hypoloid" histidine hydrochloride 4 per cent. in 5 c.cm. is supplied in boxes of five ampoules.

British Medical Journal

SATURDAY, OCTOBER 26th, 1935

THE VISIT TO AUSTRALIA

The one hundred and third Annual Meeting of the British Medical Association, held in Melbourne last month, can rank as one of the must successful, as well as one of the most important, of the whole series. Among the many factors which contributed to this happy result a few may be recalled because of their outstanding significance. In the first place, the Centenary celebrations in Melbourne, which inspired the meeting, left the people of Australia more than ever eager to avail themselves of a fresh standpoint from which to assess their progress. The recent opening of the house of the Royal Australasian College of Surgeons set the stage for a later and wider review of medical progress. The members of the Association in Australia, while determined to give a royal welcome to their visitors, were equally anxious to take the fullest possible advantage of the opportunity for an interchange of scientific thought by public discussion and personal contact. They regarded it, in the words of their own journal, as " a unique event in the history of Australian medicine."

The Scientific Sections were crowded, and the highest level of discussion was maintained, and we hear nothing but praise for the Pathological Museum and the Trade Exhibition. It was indeed fortunate that such a thoroughly representative group of medical men and women from the British Isles found it possible to make the long journey to Australia, and the Association owes no small debt of gratitude to those who, at considerable sacrifice, helped to make such a result possible. The social pageantry, which forms nowadays so large a feature of the B.M.A. Annual Meetings, lost nothing in brilliance or effectiveness in a new setting and materially helped to impress the importance of the event upon the public mind. The recognition accorded to the Meeting by the Governor-General, and the Governments of the States of New South Wales, Victoria, and Queensland, gave evidence of appreciation of the motives which had prompted the Council to embark on a venture whose success could not be estimated at the time. The Council could do no more than promise to send its officers and officials and ask for the support of its members. How generous was the response to that appeal is now a matter of history and a source of pride to all who have the welfare of the Association at heart. We must not forget to mention the valuable help received from the Australian Press, which gave full and interesting publicity to the Meeting and at the same time showed that medical matters in a wide sense are always of interest to the public.

Never was a professional congress more crowded with events in one short week, and that is no small claim to make, as those who attend home meetings will recognize. Never was the proverbial hospitality of the Australian people displayed in a more lavish and heartfelt welcome. And never have those responsible for the organization of such a congress had better cause to congratulate themselves on the result of their labours. The whole meeting went with one enthusiastic and concentrated air of happy endeavour. From the first day hosts and guests were joined in a single purpose, and in consequence the medical profession in Australia and at home are one as they have never been before, and will retain a lasting sense of corporate union. This is an outcome of which the British Medical Association may feel justly proud, and further efforts in the same direction will no doubt be called for in years to come. Those who have taken part in this medical world tour are convinced that its crowning week in Melbourne has clearly demonstrated the responsibility of the Association to the Empire, and that, difficult as the task may prove, there can be no turning back from the call. Fortunately, the rapid increase of transport facilities and the steady annihilation of distance by scientific discovery make the prospect yearly less formidable. The Australian Branches deserve every congratulation on pointing the way.

THE HARVEIAN ORATION

The Harveian Oration, delivered on St. Luke's Day before the Royal College of Physicians of London, is a suitable occasion both for looking back on the lessons that may be gathered from the past and for looking forward to developments that may be expected in the near future. Sir Henry Dale, in his scholarly and philosophical Oration, which will be found in our opening pages this week, discharged both these duties with the lucidity and breadth of view we have learned to expect of him.

It is all too common, when a great discovery has been made, for those who come after to express their surprise that in view of the data already available it was not made before. Harvey's work has not lacked that detraction. But Sir Henry Dale rightly points out that this is to ignore the blinding effect of age-long tradition and doctrine, to question which was still an impiety, and which still befogged the minds even of those among Harvey's predecessors who had most nearly arrived at the truth. A former Harveian Orator, Dr. Arnold Chaplin, vividly portrayed the mental distress which even the anatomists felt in having to differ from Galenic tradition. If this was so with the plain demonstrable facts of anatomy, how much truer must it be in the more elusive investigation of physiological function! But Sir Henry went on to make a point which seems to us a new one. He shows that even Harvey himself in later life did, as many do, tend to revert to some of the mental attitudes current in his youth, which he had done so much to overthrow in his early manhood. In the book of his old age, *De Generatione Animalium*, he " allows us to

see into what vague and fruitless speculations even he could wander " when he forsook his own precepts. This is a striking illustration of Osler's dictum that each one of us drags like chains some of the errors in which we were originally trained. Mr. Wilfred Trotter, in his masterly Lloyd Roberts Lecture recently delivered at the Royal Society of Medicine,[1] discussed this curious mental blindness with which all new truths are liable to be regarded, and explained it in one pregnant phrase: " There can be no approach to truth without some threat to the thinker's personality." The precious ego is in danger—to assimilate a new truth may profoundly alter it. It is the psychological equivalent of anaphylaxis on the physical plane, which Richet defined as the last stand of the cell against adulteration of its protoplasm.

Therefore if we pride ourselves that to-day we are free from such prejudices, we deceive ourselves, and the truth is not in us. Indeed, comparatively recent medical history would contradict us. And so Sir Henry Dale, after reviewing the present position, turns his gaze forward and wonders whether we are at the beginning of a new great epoch or merely involved in one of which the end can already be seen from afar. From one who is himself actively engaged in fruitful research this is a challenging query. What has led him to make it? A study of recent advances in our knowledge of viruses, hormones, and vitamins has, while revealing much, presented fresh problems of extraordinary complexity. Quoting his own work on the liberation of acetylcholine and adrenaline by nervous stimuli, concerning which we now have much precise information, he reminds us that we are still entirely without any conception why a particular cell should be sensitive to such a chemical substance, or why the same substance should augment the activity of one type of cell and inhibit that of another. He indicates, indeed, precisely the problem to which many minds are beginning to devote themselves, the nature of those " receptive substances " whose existence Langley and Elliott independently postulated some thirty years ago. The nature of the stimulus has been intensively studied, but it is now clear that this is only half, and perhaps the simpler half, of the question. The importance of the responsive capacity of the receptor tissues was clearly indicated by Harrison in his Harvey Lectures for 1934. He showed that when transplantation is effected between the embryos of species of different sizes, the transplant responds according to its inherited growth capacity rather than to its new endocrine environment. As Keith pointed out some years ago, the partial gigantisms in certain cases of hyperpituitarism can only be explained on the theory that the locally hypertrophied tissues had developed a special sensitiveness to the growth hormone. H. M. Evans has recently shown that the response of the dachshund and of the sheep dog to injections of the pituitary growth hormone is entirely different. Indeed, if such things were not so it would be difficult to account for the structural plasticity of the dog in the hands of the breeder. But at present we have no inkling as to the mechanism by which this cellular reaction is produced.

And so the Harveian Orator bids us consider whether we are witnessing the early stages of a major advance into a finer physical conception of the structure of living matter or whether physiology, baffled by the complexity which its methods have revealed, will be brought to a halt in its present line of advance. Pride of place seems to be passing from physiology as ordinarily understood to biochemistry. But will biochemistry without some new aids in technique succeed in further unravelling the internal mechanisms of the cell?

CULTURE OF WHOLE ORGANS

The general methods used by physiologists and pharmacologists for the study of isolated organs are familiar to every medical student. Every course of " frog-jumps " includes a few experiments on the perfused isolated frog's heart, and however familiar one becomes with this type of work the wonder remains that an organ can continue to be active for so long a time outside the body. Other commonly used preparations are the rabbit's isolated intestine, the guinea-pig's uterus, and other organs richly supplied with smooth muscle. These preparations, placed in a proper medium and supplied with oxygen, remain active for considerable periods of time, but they are dying from the moment they are removed from the body. With mammalian organs the difficulty of simulating the activities going on in the body has always been very great. The methods for perfusing the dog's heart, for example, are all based more or less on Starling's principles, and although interesting results are obtainable it has always to be kept in mind that one is dealing with a dying organ. Investigators of carbohydrate metabolism frequently turn to perfusion methods to study the glycogenic function of the liver, but in every case the results are equivocal, and the power of response of the liver is minimal when compared with its *in vivo* powers. The far-reaching conclusions of the Hampstead school of physiologists on the action of insulin were based on perfusion experiments with the eviscerated, decapitated cat, and as a result have often been called in question. Experiments on perfusion of the pancreas have met with some success in recent years, the organ producing pancreatic juice for several hours under the influence of appropriate stimuli. Recent work on the humoral transmission of the nervous impulse has led certain experimenters to perfuse sympathetic ganglia and seek for the presence of humoral transmitters between the preganglionic and post-ganglionic fibres, in some cases with marked success.

The perfusion of endocrine glands has never hitherto been performed with any significant success. Apart from the mechanical problem of supplying a pulsatile source of nutrient fluid, the difficulty of asepsis was

[1] *British Medical Journal*, October 5th, 1935, p. 609.

well-nigh insurmountable, and in a very short time the adequate functioning of the excised organ was rendered impossible on the grounds of infection alone. Recently, however, a notable advance has been made in America by Carrel and Lindbergh, and it would seem that the actual growth of a gland can be effected outside the body. The apparatus used in this remarkable work is described by its inventor, C. A. Lindbergh,[1] as consisting of two portions: a perfusion pump containing the organ and perfusion fluid, which must be handled aseptically, and an arrangement for creating and transmitting a pulsating gas pressure to the perfusion fluid. The device is complicated. The organs are removed from fowls or cats after killing by bleeding under anaesthesia. The organ is extirpated together with its surrounding tissues, arteries, veins, nerves, and lymph vessels. The extirpation is carried out with rigid asepsis. The perfusion fluids used contain protein hydrolytic products, haemin, cysteine, insulin, thyroxine, glutathione, vitamin A, vitamin C, blood serum, etc., according to the necessities of the particular organ to be perfused. Sometimes haemoglobin also is used. The gaseous medium consists of 40 per cent. oxygen and from 3 to 4 per cent. CO_2, the remainder being nitrogen. The whole apparatus is kept in an incubator at 37° to 38° C., and the most careful precautions are taken to prevent infection or contamination. Thyroid glands were kept more than twenty days with pulsating arteries and active circulation, and it is claimed they could have been kept for a much longer time. Emboli and large haemorrhages were not encountered. The perfused organs were observed to change in form and volume from day to day. Thyroids perfused with diluted serum were found to decrease in size progressively. Cat ovaries or thyroids perfused with a growth-promoting medium grew rapidly. In five days the weight of an ovary increased from 90 mg. to 284 mg., and three corpora lutea developed. That the ovary was active after over twenty days could be demonstrated by tissue culture in flasks. Perfusion of an adult thyroid with a growth-*activating* fluid induced foetal activity in its epithelium. Colloid was observed in some of the thyroid follicles. If perfused with a growth-*promoting* fluid the structure of the gland altered: the colloid disappeared and the epithelium proliferated both within and without the follicles. Ovaries reacted in a similar way if perfused with the same fluid. Apparently a large amount of new tissue had been manufactured by the organ. Some evidence was also obtained that the thyroid gland could secrete an active substance in these conditions.

The experiments are, of course, still in a very early stage of development, but it would appear that it has become possible not only to keep endocrine glands alive for considerable periods outside the body but also to promote this growth in similar circumstances. If it becomes possible to detect unequivocally the presence in the perfusion fluid of endocrine products *in vitro*, a new era of physiological research will be opened, and it will be possible to study directly stimulation and inhibition of glandular action. At present much of our knowledge of the interaction of endocrines is based upon inference, but with a method of direct attack great advances are certain.

[1] *Journ. Exper. Med.*, September, 1935.

A NEW TREATMENT FOR CANCER

Reports transmitted from Canada to the English press have already made it known that Dr. Hendry C. Connell of Queen's University, Kingston, Ontario, has devised a new method of treating cancer and employed it with at least initial and apparent success. His first paper[1] on the subject has now reached us, and this contains a short account of the steps in experiment and argument which led to the present position. Dr. Connell is an ophthalmic surgeon, and his present work really began five years ago in an attempt to use proteolytic enzymes for the solution of cataracts. Although enzymes having this action can be obtained, they have no specificity, other intraocular structures than the lens being attacked. Faced with failures due to this cause he had recourse to *B. histolyticus* (*Cl. histolyticum*), an anaerobe sometimes found in infected wounds and long recognized as actively proteolytic. It is said to have been found that this micro-organism, when grown in a medium containing lens protein as the only source of nitrogen, produced an enzyme acting specifically on this protein and not on others. This is simply stated, and for so vital a step in the argument detailed evidence will no doubt be forthcoming later. Granting this, it is certainly not too fantastic an idea that the same micro-organism should be cultivated in a medium consisting simply of malignant tissue suspended in saline, and that a filtrate of this culture should be employed to attack the living growth in the body. This in fact was done, and preliminary trials in mice showed that the intramuscular injection of such a filtrate was followed by degenerative changes in their tumours. At this stage the method was submitted to the director of the Imperial Cancer Research Fund in London, and a letter appearing in our last issue (p. 760) reports the results of observations made there, which have been entirely negative. The treatment of human cases of malignant disease was then attempted, and Dr. Connell's paper contains thirty case reports, in many of which repeated injections of an autogenous enzyme solution (that is, the filtrate of a culture of *Cl. histolyticum* in a medium containing a portion of the patient's own growth) were followed by a relief of pain, increased mobility, shrinkage, or other apparently retrogressive changes in the growth, and striking amelioration in the general condition. Since this treatment was begun only last May it is naturally too early to assess results, and Dr. Connell is commendably moderate in his claims, although, underlying his necessary reticence, it is clear that there is a wild hope, if not indeed some degree of conviction, that here at last is the royal road to the relief of cancer.

Criticism of this report is largely disarmed by the absence of essential data. The specificity of the enzymes produced is the central question. Even were it proved beyond doubt that *Cl. histolyticum* can be

[1] *Canadian Med. Assoc. Journ.*, 1935, xxxiii, 364.

made to form an enzyme acting only on lens protein, this protein occupies so peculiar a position that it cannot necessarily serve as a basis for the further argument. The chemical structure of the malignant cell is not known to differ so essentially from that of corresponding normal cells; the destruction of a columnar-celled carcinoma by an agent which leaves normal columnar epithelium unaffected represents an achievement in specificity which is contrary to all expectation. There are simple means of demonstrating such an effect whch might with advantage have been adopted before plunging into the final stage of clinical trial. It may also be asked how a remedy injected intramuscularly in small empirical doses comes to be concentrated in a distant growth to a sufficient extent to exert this effect. The enzymes of *Cl. histolyticum* are stated to be antigenic; if this is so, neutralization by circulating antibodies would deprive later doses of any effect. There is, of course, another possibility altogether, not apparently considered by Dr. Connell—namely, that he is immunizing the body against the growth by injecting the products of its decomposition: deliberate attempts of this kind have been made before. Nothing more than speculation is possible with the information at present available, but it should be clear that several large gaps have to be filled up before the arguments in this paper can be accepted, and very much more evidence is needed before any hope can be entertained that a new and effective treatment for malignant disease has been discovered.

RESEARCH IN MENTAL DISEASE

The medical profession in this country will welcome the news that on October 22nd the London County Council accepted the generous offer of the Rockefeller Foundation to contribute £9,000 to be expended on psychiatric research at the Maudsley Hospital during a three-year period at the rate of £3,000 annually. It has been agreed that the grant from the Foundation shall provide the salaries of five research workers to be nominated by Dr. Edward Mapother, the medical superintendent of the hospital and Dr. F. L. Golla, director of the central pathological laboratory. It has also been arranged that for the present two of these posts shall be held by workers engaged on clinical investigations mainly in the hospital, while the remaining three shall be held by workers carrying on pathological research mainly in the laboratory. The names of those appointed in the first instance are as follows: Dr. W. Mayer Gross, formerly professor at the University of Heidelberg, and Dr. Erich Guttmann, formerly privatdozent at the University of Breslau, who are to work in the hospital; and Dr. Alfred Mayer, formerly professor at the University of Bonn, Dr. Adolf Beck, formerly chief assistant at the Institute of Hygiene and Bacteriology of the University of Marburg, and Mr. Grey Walter, B.Sc., formerly research assistant at the pathological laboratories, Cambridge, under Professor Barcroft, who are to work in the laboratory. It is interesting to note that two of the workers in this team will be occupied with clinical psychiatry. If fruitful results are to be obtained it would appear that there should be continuous contact between those who are engaged in physiological research and those who are dealing with patients in the wards. The donation from the Rockefeller Foundation is the largest intended for research work in psychiatry which has yet been made; this is excluding, of course, gifts by the Commonwealth Fund for the maintenance of the Child Guidance Clinic and Council and the support for psychiatric workers at the London School of Economics, which are practical rather than scientific. At the same time the dearth of any research in psychiatry tends to be rather exaggerated. It has been suggested that there is little research and especially of a "psychological" kind. There is a large output of psychological research of the type which arises directly from clinical experience by the clinical staff of many hospitals, including the Maudsley. Though the present is the largest donation received, about eight other workers on the staff of the Maudsley have had from the Rockefeller Foundation travelling fellowships in America and Germany to equip them for doing research and teaching. During the past two years the Rockefeller Foundation has also been contributing in a more personal way to the support of the four German workers above mentioned and also others engaged at the Maudsley. The Commonwealth Fund for three years provided two research fellowships of £600 each per annum, and this year has provided one. Various other grants have, of course, been obtained from the Medical Research Council, and we must not overlook the existence of the £10,000 left by Maudsley himself in his will, the interest of which is partly expended on the payment of a "Maudsley Fellow" and partly in grants to workers doing short-time investigations. It should be noted that a considerable amount of important research often with a direct bearing on treatment has been carried out in many county mental hospitals in the country. Finally, the name of Sir Frederick Mott must not be forgotten, because he did so much to stimulate research in mental disease.

CHEMISTRY OF ACETYL-SALICYLIC ACID

Aspirin is consumed in quantities far exceeding any other drug, and, indeed, the annual consumption in this country is estimated at 1,000 tons. The drug is not, however, completely satisfactory, because in some cases it produces undesirable side actions, such as gastric irritation. Moreover, it is an acid, and its regular consumption may cause a certain degree of acidosis. Most of these undesirable side actions could be avoided by the substitution of a neutral soluble salt for the insoluble free acid, and various reports have appeared showing the advantages of calcium acetyl salicylate over acetyl-salicylic acid. Unfortunately, calcium acetyl salicylate tends to hydrolyse and form free salicylic acid much more rapidly than does acetyl-salicylic acid, and in the case of the former drug this decomposition occurs to a certain extent even when it is kept at room temperature in the solid state. Dr. Myer Coplans and Mr. A. G. Green[1] have investigated the problem of finding a sufficiently stable preparation of calcium acetyl salicylate. They have shown that the addition of either calcium or magnesium chloride (3 to 9 per cent.) has a remarkable

[1] "The Chemistry and Pharmacology of Acetylsalicylic Acid and its Salts," *Journ. Soc. Chem. Industry*, 1935, liv, 805.

action in preventing the decomposition of calcium acetyl salicylate. Samples of the pure salt when kept at 37° C. for two weeks showed 33 per cent. of free salicylic acid, whereas preparations to which calcium chloride had been added, when kept under the same conditions for eight weeks, yielded only about 3 per cent. of free salicylic acid. This discovery appears to provide a solution of the problem of the production of a satisfactory preparation of calcium acetyl salicylate, and constitutes an interesting and important advance in pharmaceutical chemistry.

WHITHER RADIOLOGY?

Two radiologists, one a veteran and the other of the younger generation, delivered presidential addresses last week—Dr. L. A. Rowden of Leeds from the chair of the British Institute of Radiology, and Dr. C. G. Teall of Birmingham from that of the Section of Radiology of the Royal Society of Medicine. Dr. Rowden's address was an interesting excursion into the past. Just as there is a generation growing up to whom the war is only a tale told them by their fathers, so there are radiologists who have had no experience of inadequate apparatus or makeshift provisions, although the history of *x* rays is comprehended within less than forty years. Dr. Rowden described the old tubes, coils, and mercury breaks, also the early measures for protection, which were not so inefficient as some people think. Dr. Teall, on the other hand, looked forward, counting himself fortunate to belong to a generation of radiologists who had known nothing but good apparatus of increasing facility. There was, however, one bogy about apparatus he wanted to lay. It was often asserted that with the advent of the push-button type of equipment almost everyone would be able to produce satisfactory radiographs. Unless the radiologist had the necessary knowledge of anatomy his beautiful picture might be quite useless, and the idea should be discouraged that radiographic technique was now quite easy. Dr. Teall went on to point out that with each fresh advance radiology was becoming more highly specialized. Two classes of radiologists were being developed: one the skilled consultant, the other the general practitioner of radiology. Advance would largely be made by the men who had taken a special interest in one branch of their work. On the other hand, while radiology became every year more specialized and difficult, comparatively cheap apparatus was also available. In the large towns a good radiological service in which the best type of apparatus was employed was usually provided, but the position was different in out-of-the-way districts, and this simpler apparatus enabled the country practitioner to make use of *x* rays in his practice. The right policy was not to try to stop the use of such apparatus, but to ensure that the practitioners who employed it were instructed in its legitimate application and limitations. If only medical students were given an adequate knowledge of radiology in their curriculum any danger from the more general employment of small apparatus would not be apprehended. Practitioners varied very much in the use that they made of the *x*-ray method. Some resorted to it infrequently, and their patients suffered in consequence; others relied too much upon it, and again their patients suffered. Dr. Teall desired to see the medical profession more radiologically minded, in the true sense of the word. The hospitals were now equipped with departments capable of all types of *x*-ray work, and the cost of such departments, both capital and maintenance, was very high. At the same time, many hospitals were adding private beds, and to the patients in such beds the facilities of these well-equipped departments would be available. The private radiologist could not compete with the service thus provided, and the radiologist, like the physician and surgeon, would do more and more of his work in institutions. In conclusion, Dr. Teall referred to the Cambridge diploma in radiology. This and other diplomas since inaugurated had become not only recognized but regarded as an essential qualification for anyone who proposed to take up radiology. He wished it could be made one of the requirements for obtaining the diploma that candidates should have held at least one medical or surgical resident appointment. Many radiologists now took the view that a higher qualification still was necessary if the standard of radiology was to be maintained at a sufficiently high level to keep pace with developments in therapeutics and in diagnostic work. It might then be possible to develop a college of radiology in which all the developments of radiological work would be fostered and co-ordinated. He believed that must be the ultimate goal.

PLASTIC SURGERY IN FRENCH LAW

French surgeons are much concerned at a recent judgement of the courts in which a surgeon was sued by a patient who had consulted him for hyperplasia of the legs, and had threatened suicide if he would not perform a cosmetic operation. He consented, telling her that the risk was slight, and took her into hospital as a non-paying patient. He operated on one leg, and then gangrene set in and he had to amputate. The Civil Tribunal of the Seine awarded her 200,000 francs damages, and said in its judgement that, as the surgeon had performed an operation that was merely cosmetic and had no therapeutic basis, he must be held responsible for the consequences; it did not consider that the patient had given valid consent, because the surgeon had not truly represented the risk. The Association of Hospital Surgeons took the case to appeal and the judgement was upheld, though the court recognized that the surgeon had acted in a disinterested manner by giving his services free. The authors of a pamphlet on the subject[1] consider that the judgement amounts to a legal ruling against plastic surgery in general, and almost to a threat to any kind of surgical experimentation. They blame the profession in general for facilitating such a harsh judgement by a regrettably commercial attitude towards cosmetic surgery in the past. It seems unlikely that on the facts as stated an English court would have found this surgeon negligent, and still less likely that an English judge in summing up would have distinguished an operation performed to remedy a physical disfigurement from one performed to cure an illness. Incidentally, the result shows that it is not only a jury that can go astray over a medical case.

[1] *La Chirurgie réparatrice dans ses Rapports avec la Jurisprudence.* By Dr. Claoué and I. Bernard. Paris: Librairie Maloine.

TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some diseases of the nervous system met with in general practice

THE TREATMENT OF MIGRAINE

BY

MACDONALD CRITCHLEY, M.D., F.R.C.P.

It is not easy to foretell whether or not a migrainous subject will react favourably to treatment. Considerable variability occurs in the susceptibility of the patient to the therapeutic agencies at present at our command. Neither the severity of the attacks themselves nor their frequency determines the response to treatment, and comparatively mild cases may actually prove the most intractable.

When it is recalled that migraine is usually an inherited constitutional affection, the difficulties in treatment are at once realized. Moreover, I am of opinion that there is, strictly speaking, no such entity as migraine proper; rather should we think of migrainous subjects who are victims of periodic headaches as the result of a variety of precipitating factors, whether psychological, endocrine, allergic, ocular, gastro-intestinal, or hepatic. In some cases a particular precipitating cause seems to be specific, whilst in others more than one factor may be effective on different occasions. It follows, therefore, that the rational approach to the study of a migrainous subject will comprise, first, a thorough investigation into the nature of the precipitating factors, bearing in mind the fact that attacks of migraine may be entirely symptomatic and indicative of gross disorder in regions such as the cranium or gall-bladder.

Preliminary Investigations

First among the investigations will be a careful examination of the eyes for errors of refraction and of muscle balance. I believe that a complete correction of such defects will be necessary, and failure to carry out this preliminary step will jeopardize the success of the other forms of treatment. Many ophthalmic surgeons consider that the glasses prescribed should be worn constantly, and not be reserved for close work only. A certain advantage is to be gained in the use of lightly tinted lenses.

Besides a complete routine neurological examination it is necessary always to auscultate the skull with a stethoscope. The importance of this lies in the fact that a rare but well-established cause of migrainous attacks is found in blood-vessel tumours of the brain, including both the so-called "congenital" aneurysms and the rarer cerebral angiomata. In the latter case a skiagram of the skull usually proves diagnostic. Cases of "biliary" or "hepatic" migraine require special study of the functional integrity of the gall-bladder, and skiagrams, duodenal intubation, and blood examination may be necessary. Allergic cases demand the special tests for skin sensitivity in order that the offending protein may be demonstrated.

When all the available data as to aetiology are to hand, treatment may be instituted upon an approximately scientific basis. For convenience one may consider therapy under three main heads: (1) prevention of attacks (*a*) by non-specific means, (*b*) by specific therapy, and (*c*) by surgical measures; (2) treatment of a threatening attack; and (3) treatment of a fully developed attack.

Prevention of Attacks

Non-specific Measures.—In practice, non-specific therapy usually proves to be not only of the greatest all-round utility, but also the most effective. For even when the precipitating factors are determined they may be incapable of removal. Luminal (pheno-barbital; gardenal) is almost certainly the most useful drug in the treatment of all types of migraine. It may be prescribed in doses of 1 grain at bedtime or 1/2 grain night and morning. In less tractable cases the dosage may be increased gradually to 1 grain twice or even three times daily. Most neurologists will affirm that no untoward bodily or mental effects accrue from the regular and prolonged employment of luminal in these doses. Unfortunately, while considerably improving the majority of patients, luminal does not suit everyone. Such patients usually prove to be very resistant to other forms of medication, and may be the despair of their doctors and of their relatives. In such cases it is worth while trying prominal (Bayer), 2 to 3 grains at night time, or superminal (Minerva Apotheke) 1/2 to 1 tablet at night, though the value of these preparations in the treatment of migraine is not yet established.

Thyroid extract is often useful, even though obvious endocrine factors are not at work. It is necessary to employ very small doses, and 1/10 grain of the ext. thyroid. siccum (*B.P. 1933*) should be prescribed thrice daily. Nitroglycerin and its derivatives were advocated by the older physicians, and are now largely replaced by the barbiturates. One may order tabellae of nitroglycerin in doses of 1/200 to 1/100 grain two or three times a day. Liquor trinitrini is a constituent of the well-known prescription used by Sir William Gowers in the treatment of migraine:

℞ Liq. trinitrini ... ... ♏ j
Liq. strych. ... ... ♏ v
Sod. bromid. ... ... gr. x
Ac. hydrochor. dil. ... ... ♏ x
Tr. gelsem. ... ... ♏ v
Aq. chlorof. ... ... ad ʒ ss
ʒ ss t.d.s., p.c.

Ergotamine tartrate has lately become popular in cases of migraine. While it is usually employed for the relief of an attack itself, there is some evidence that it may also prove of value when administered regularly. One must bear in mind, however, the possible danger of producing ergotism. The drug, which is sold in this country under the trade name of femergen (Sandoz), may be prescribed in the form of tablets, each of 1 mg., once, twice, or three times daily.

Specific Therapy.—This is indicated where the aetiological factors are obvious. In allergic migraine the best results are obtained from the removal of the responsible protein factor. Less favourable results are obtained from attempts at desensitization. For this purpose hypodermic injections of a 50 per cent. aqueous solution of peptone may be given on alternate days. The initial dose is 1 minim, and each dose is increased by a minim up to 3 minims; doses of 3 minims should then be continued for twenty days. A combination of large doses of calcium and of viosterol is also worth a trial. The following prescription may be noted:

℞ Calc. chlorid. (anhydrous) ... ... 50 grams
Aq. destill. ... ... ad 500 c.cm.
ʒ j thrice or four times daily, p.c., ex aqua

For biliary migraine one may either administer bile salts or else institute biliary drainage. In the former case capsules of sodium glycocholate, 3 to 20 grains, may be prescribed three times daily. T. C. Hunt recommends the larger doses unless unpleasant side-effects occur, such as vomiting. The proprietary preparation decholin (Riedel) may be ordered, the dosage being one or two tablets thrice daily. J. Geoghegan suggests two methods of biliary drainage. In milder cases a little Karlsbad salts regularly every morning, followed by a copious amount of warm water or hot tea, will suffice. For severe cases duodenal intubation will be necessary twice weekly, using a 30 per cent. solution of magnesium sulphate. Cases of menstrual migraine may be treated with ovarian or placental extracts. Thus one may prescribe any of the following:

1. Theelin: 1 c.cm. (50 rat units) injected on alternate days during the week prior to the onset of menstruation.
2. Emmenin complex (Glaxo): one to two ounces orally twice daily, except during the menstrual period.
3. Menformon (Organon): 1 c.cm. injected twice weekly.

Other endocrine types of migraine are treated by thyroid extract (as already mentioned) or by pituitrin injections, 1/2 c.cm. weekly.

Surgical Treatment.—This is very occasionally necessary, not only in the cases of "symptomatic" migraine associated with vascular tumours of the brain, but also in some intractable "idiopathic" cases. Among the various operative procedures that have been advocated two deserve mention as being based upon a more or less plausible foundation. In the first place there is Dandy's operation of removal of the stellate ganglion, and secondly Dickerson's suggestion of ligating the middle meningeal artery, with resection of a small portion of the vessel. The clinical indication for serious consideration of surgical intervention is as follows: severe cases of migraine in which the headache is always strictly unilateral and localized to the same area of the skull, and which have failed to respond to a thorough medicinal regime.

Treatment of a Threatening Attack

Sometimes it is possible to cut short an impending attack provided that measures can be promptly instituted. Thus it is not rare for the victim to wake in the morning either too early or too late, with a feeling of discomfort or dull headache which merges later into an intense hemicrania. In such cases the patient should remain in bed for an extra hour or two, and take at once a draught containing bromide, aspirin, or caffeine, singly or combined. Any of the following are of service:

Tab. tri-bromid. effervesc. (B.W. and Co.), one tablet dissolved in a tumbler of water.
Tab. empirin co., two to three (aspirin 3½ grains, phenacetin 2½ grains, and caffeine ½ grain).

The action of analgesics is enhanced by caffeine, whether taken as such or in the form of a cup of strong tea, coffee, or maté. In other cases a saline aperient is sufficient to abort an attack of migraine. Some medical men have advocated preparations of calcium at this stage, and one may try calcium lactate 30 to 40 grains, or kalzana (Wulfing) three to four tablets.

Treatment of the Attack

When the attack is severe the patient goes to bed and tries to secure sleep. He will shun not only all noise and bright light, but also food and drink, and in particular the administrations of solicitous relatives. There are a large number of excellent analgesic preparations available, but, unfortunately, tolerance is quickly attained. Benefit results, therefore, from a change of medicament. Any of the following may be tried: veganin (Warner); neurettes (Evans Lescher and Webb); compral (Bayer); antikamnia compound; dialacetin (Ciba); veramon (Schering). Various combinations of aspirin, phenacetin, pyramidon, and bromide may be prescribed. The following is at times useful:

℞ Pot. brom. ... ... gr. xxx
Chloral. hydrat. ... ... gr. xv
Aspirin ... ... gr. xx
Mucil. tragacanth. ... ... gr. v
Aq. chlorof. ... ... ad ℥ j

Preparations containing pyramidon should not be prescribed over long periods or for frequent use, owing to the possibility of untoward action upon the leucocytes. Injections of adrenaline (5 minims) have lately been recommended for the relief of an acute attack. The efficacy of this drug is apparently very inconstant, but at times the results are most satisfactory. Among the more recent and promising forms of treatment is the intramuscular injection of ergotamine tartrate (femergen) 0.5 c.cm. The benefit as to headache is frequently almost dramatic, although unpleasant concomitants such as vomiting or uterine colic may arise. Usually, however, the effect is to bring promptly to a close an attack of migraine which would otherwise disable the patient for hours or even days. In very intense cases the intravenous route has been recommended. It is perhaps advisable that when ergotamine tartrate is being employed for the first time half the usual dose should be given. Another promising measure which has recently been employed at the National Hospital consists in the intravenous injection of sodium luminal, 3 grains dissolved in 12 c.cm. of water.

Psychotherapy

Nothing has been said so far as to the psychological aspect of migraine and its treatment by psychotherapy. Unquestionably in a number of cases psychological stress plays a highly significant part, and there is often an emotional background which is fairly characteristic. Moreover, there is a tendency for the attacks of hemicrania to be precipitated in some subjects by purely psychological factors. Such cases may improve considerably under expert psychological treatment, though it is perhaps questionable whether drug therapy can or need be entirely superseded thereby.

Chronic Ill-health in Migrainous Subjects

Victims of severe migraine, where the attacks are both frequent and prolonged, are liable to develop a condition of great debility causing almost total incapacity. The victim, usually a woman, becomes intensely fatigued and depressed, sleeps and eats badly, and loses weight. Her features become pale and haggard, and a persistent hypotension is demonstrable.

Treatment in such cases is often extremely difficult. Among drugs there is a place for tonics of the strychnine class, as well as for ephedrine sulphate 1/4 grain twice or thrice daily. The appetite must be stimulated with stomachics or with alcohol, and the patient's fluid intake be increased. Graduated physical exercise, particularly walking, should be encouraged, though frequently in the face of considerable opposition on the patient's part. Massage, hydrotherapy, and electrical treatment may also be of service here. Such patients have frequently fallen into bad habits of inadequate meals, late hours, excessive smoking, and aspirin addiction, all of which will require tactful correction. A holiday, or even prolonged residence at a bracing resort, is valuable, care being taken to avoid "enervating" or "relaxing" areas. In the most intractable cases, indeed, it is doubtful whether anything

less than a protracted sanatorium life will be effective, with abundant rest and rich, regular food, regulated hours of exercise, and medical supervision. The ideal is achieved at the sanatoria for tuberculosis, but good results may also accrue at a hydro or a spa. At the last-named advantage may be taken of colonic irrigations and balneotherapy to correct hepatic dysfunction. For this purpose the spas of Harrogate and Llandrindod Wells in this country, Wiesbaden and Baden-Baden in Germany, and Vichy in France are particularly suitable.

MOTOR CARS FOR 1936

THE OLYMPIA SHOW

[From our Motoring Correspondent]

The twenty-ninth Annual Motor Show, organized by the Society of Motor Manufacturers and Traders, which opened its doors on Thursday, October 17th, and closes to-day (October 26th), may probably be the last to be held in the famous Olympia halls in Kensington, as it was announced a little time ago that the exhibition is to be transferred to the reconstructed buildings at Earl's Court, which in the pre-war days were a very popular exhibition centre.

This year's Show, notwithstanding a slight reduction in the number of exhibitors, is well up to standard, for besides those in the motor bodywork section, just over fifty different makers of cars are represented, of which approximately thirty are British, while on twenty stands are to be seen the latest productions of American, Canadian, French, German, and Italian makers. No doubt foreign firms continue to display their cars at Olympia because the British Show is now regarded as having the biggest international attraction. So far as the Home Country is concerned, it is only a small market for foreign cars, the latest registration figures of motor vehicles in Great Britain showing that fully 94 per cent. of them are British.

The Trend of Design

Passing to a general review of the cars of 1936, and dealing first with prices, it will be found that while slight advances have been made in a few cases, on the whole they remain about the same as last year, despite the "better value for money" they represent by reason of numerous detail improvements and added conveniences. For those who are interested in the technical details of cars it may be stated that in the popular price range the four-cylinder engine continues to hold its own with the six-cylinder power unit, although the latter type is now almost exclusively used on cars of over 12-h.p. The modern petrol engine, whether with four or six cylinders, has reached a point, as regards both efficiency and reliability, which would seem to leave but little room for further improvement. At the same time, while the basic design remains unchanged, power units are much "cleaner" in appearance than those of even only two years ago. Much attention has also been paid to the material used for the construction of the various parts to ensure long life and silent running. The battery-coil system of ignition is more widely used than ever, while the fitting of a magneto has declined during the past five years from 15 to about 8 per cent. of the exhibits.

Higher Average Horse-power

As the Prince of Wales pointed out in his opening address, one effect of the reduced annual car tax has been an increase in the average horse-power of British cars, this being now about 19-h.p. as against only 15-h.p. a year ago, a change which he regarded as favourable to an increased export trade, higher power being more in demand over-seas than in this country. Although there is an increasing trade in vehicles of relatively high horse-power, the main goal in Great Britain is, however, for cars up to 12-h.p., and especially those of 8-h.p. and 10 h.p. At the same time there is a big display of cars from 12-h.p. to 24-h.p., while there are some notable additions to the list of cars of even higher power, among them being a Daimler 25.7-h.p. "straight eight" and a 50.7-h.p. Rolls-Royce with a twelve-cylinder engine arranged in V fashion. Another feature of the new season's models is the appearance of two cars fitted with eight-cylinder V-type engines —namely, an 18-h.p. Riley and a 22-h.p. Ford. The latter is, so far as the engine is concerned, a smaller edition of the same company's 30-h.p. model, and has been introduced to meet the demand for a vehicle possessing the same features but subject both to a lower annual tax and to reduced running expenses. While on the subject of engines reference may be made to another interesting departure provided by the Jowett Company. This concern has for years confined its attention to cars fitted with a horizontal two-cylinder engine, but has now added a 10-h.p. car with a four-cylinder power unit, the horizontal cylinders being arranged in pairs on each side of the central crankshaft.

In two or three instances manufacturers have adopted the plan of offering buyers the option of two sizes of engine for the same chassis. Thus the Morris "Ten" can be supplied with a 12-h.p. engine at an extra cost of about £5, while the same makers' six-cylinder cars can for the same price have in the one case either a 16-h.p. or 18-h.p. engine, or in the other either a 21-h.p. or 25-h.p. power unit. Similarly, buyers of the Vauxhall "Big Six" may choose either a 20-h.p. or 27-h.p. engine, both being listed at the same price.

Change-speed Gears

As regards change-speed mechanism, whether it is due to the greater efficiency of the modern petrol engine or not, it is noteworthy that during the past two years there has been a marked tendency to provide cars with only three forward speeds; for although four-speed gearboxes are still in the majority their proportion to the total has fallen from 73 per cent. in 1934 to 69 per cent. now, those with only three speeds having during the same period increased from 21 to over 30 per cent., the balance in both years representing miscellaneous types of change-speed gearing. In both three- and four-speed gearboxes the gears are now, in nearly all cases, of what is known as the synchromesh variety, the advantage of which is the quiet and easy way in which gear changes can be made. The B.S.A., Daimler, and Lanchester are still the only cars with fluid flywheel transmission and preselective gear changing. The Armstrong-Siddeley Company, for the eighth year in succession, is pinning its faith to its self-changing gear, which is also available either as standard or as an extra on certain other makes of cars. This also applies to the Hayes gear on some of the Austin models, and to the de Normanville gear arrangement sponsored by the Humber Company. A somewhat new idea is found on some of the Continental cars—that of mounting the change-speed and emergency brake levers on the dash. Those who have had experience with them report that they present no serious difficulty of operation, and provide the added advantage of freedom from projecting levers in the footboards.

Standardizing Car Controls

Although the day is a long way off when cars will be all made to a series of standard patterns and sizes, there is one direction in which more uniformity in design has been achieved—namely, in the arrangement of the clutch, brake, and accelerator pedals. Up to a year or so ago there were many cars in which the accelerator pedal was centrally located between the other two. Now, as the result of the standardization efforts of the Society of Motor Manufacturers and the Institution of Automobile Engineers, the generally accepted plan is to locate the accelerator pedal to the right of that operating the brakes. A similar trend to greater uniformity is also taking place in respect to the change-speed lever positions with four-

speed gearboxes. Free-wheel devices continue to be provided by a number of manufacturers, but for some reason they are not proving as popular as was expected, and have been withdrawn in one or two instances. On the other hand, although not yet adopted to the same extent as on the Continent, there is no doubt that independent front-wheel suspension is rapidly becoming the order of the day, new adherents to this form of suspension including the Fiat, Rolls-Royce, Hillman, and Humber, the system adopted by the last two named concerns being known as the "evenkeel." Thus, while semi-elliptic springs are still being mainly used, their proportion has since 1932 dropped from 93.5 per cent. to 66.8 per cent., while during that period the independent wheel springing principle has gone up from just over 2 per cent. to 25½ per cent.

Improved Bodywork

Undoubtedly the chief feature of this year's exhibition is the rapid change which is taking place in the outward appearance or contour of cars. As compared with the somewhat straight lines and sharp angles of those of only a few years ago, the present fashion is entirely in the direction of sloping fronts and rears, which, where not carried out to what may be termed an *outré* degree, give the vehicles an attractive appearance. While they are low-built, efforts have been made in some of the models to provide more head room and wider seats for the passengers. Another direction in which improvements have been effected is in connexion with the storage of luggage and the spare wheel and tyre, these being now enclosed in the tail of the car, which is usually fitted with a hinged cover. Some makers have provided for the storage of suit-cases behind the squab of the back seat, the squab being hinged so that it may be raised or lowered—an arrangement which, however, in the opinion of the writer, is not so convenient as the first-mentioned method.

Although covered cars, and particularly saloons and coupés, are still in the majority, a walk round the exhibition gives one the impression that there is a larger increase in the number of open cars than for some years past; closer inspection reveals them to be mainly of the sports variety. Other directions in which improvements have been effected are found in the more forward mounting of the engine and its bonnet, so that the driver and passengers on the two rows of seats are all carried between the axles, making for a better distribution of the weight and more comfortable riding. Noticeable examples of this tendency are found in the Vauxhall, the Hillman, and the Wolseley cars. Greater attention is also being paid to the form of the seats themselves, so as to provide a more comfortable position for the passengers, especially when long journeys have to be undertaken. In this connexion, too, reference may be made to the provision on some makes of cars of steering columns which are adjustable as to length, so that drivers of different stature have no longer to adapt themselves to the one set position of the steering wheel, but can adjust the latter to their individual requirements. One is glad to note, too, the greater attention that is being devoted to the ventilation of the interiors of covered cars. Chassis frames are undergoing some modification, the usual channel-section side members being now in many instances replaced by what are known as box-section members, for which greater rigidity is claimed.

Another feature of the year is the number of cars now being provided with permanently fitted jacks, which can be let down on, and the car raised from, the road by suitable mechanical attachments within the vehicle. Although it is very rare nowadays for tyres to give trouble on the road, these fitted jacks are a step in the right direction, as, with the lower build of the modern car, it is not an easy matter to get jacks of the ordinary pattern under the axles when a wheel has to be changed. While the majority of motorists are beginning to entrust car lubrication operations to service stations, owner-drivers will welcome the more general adoption of centralized lubrication nipples on many vehicles. In the case of road wheels, the wire-spoked variety, which as it were held the field for some years, would appear to be losing ground nowadays in favour of disk and semi-disk pressed steel wheels.

The exhibition, as usual, appeals to all classes of motorists, from those requiring only a small runabout, such as the Austin "Seven" or the Morris "Eight," to mention only two examples, to those desiring large and luxurious vehicles typified by the Rolls-Royce, Daimler, and other well-known makes. The requirements of the sporting type of motorist, too, are also being well catered for by such firms as M.G., Singer, S.S., Riley, Triumph, Frazer-Nash, and others.

Among the Accessories

A feature of the accessory section of the exhibition, which, as usual, is to be found mainly in the galleries, is the introduction of a number of new devices especially intended to meet the requirements of the latest motoring regulations, and particularly in connexion with the headlights and other lamps of cars, many new patterns of which are displayed. S. Smith and Sons, Ltd., and a number of other firms have also introduced devices which will give a visible or audible warning should a driver exceed the 30-miles-per-hour speed limit. In view of the approach of the winter season, radiator muffs, anti-freezing preparations, foot-warmers for the car, as also engine warmers and garage heaters to facilitate easy starting on cold mornings, are also to be seen in great variety. One useful fitting that is now provided on practically all new cars is the direction indicator, usually mounted in the pillar between the front and rear doors of saloons. Although the use of direction indicators is not yet a legal requirement, it may be well to point out that the Ministry of Transport has lately issued a series of regulations, to come into operation on January 1st next, stipulating that, where used, they must conform to a certain general type and to specified mounting positions, one of the chief requirements being that they must be illuminated in an amber colour. Several patterns of direction indicators are to be seen at the exhibition which may be fitted to old cars, and where they are adopted care should be taken to see that both the indicators themselves and the way they are mounted are in accordance with the new regulations.

One section of the exhibition is devoted to a display of caravans adapted to be hauled behind the car, which are proving increasingly popular for holiday-making purposes. Good as these were last year, users' requirements are becoming more stringent, with the result that caravan design has been greatly improved during the past twelve months, until now they are veritable "homes on wheels" equipped with every comfort and convenience.

In next week's issue it is proposed to follow the usual plan of referring to some of the new car models, more particularly those which are likely to appeal to the majority of medical men from the points of view of cost and suitability.

C. J. W.

The third International Congress of Comparative Pathology will be held in Athens from April 15th to 18th, 1936, under the presidency of Professor W. Bensis of Paris. Special reports will be made on the following subjects: nephrosis and amyloidosis; echinococcosis, leishmaniasis, and spirochaetosis in man and domestic animals; the influence of avitaminosis on the functions of the digestive system; anaerobic infections in domestic animals; and immunity in plants. In connexion with this congress a twelve-day cruise will be organized, commencing on April 11th at Venice, allowing attendance at the congress sessions, and thereafter continuing until April 23rd, when Venice will be reached again. The places to be visited include Mount Athos, Nauplia, Olympia, Delphi, Mycenae, Corinth, Tiryns, and Sparta. The membership fee is 100 French francs, and members' relatives may participate at half fee rates. The cost of the cruise is not yet known. For further details application should be made to Professor Anthony Kodounis, 40, Didotou Street, Athens.

ONE HUNDRED AND THIRD ANNUAL MEETING

of the

British Medical Association

MELBOURNE, SEPTEMBER, 1935

THE SECTIONS

SUMMARY OF PROCEEDINGS

Publication of the opening papers communicated to the Scientific Sections of the Annual Meeting at Melbourne began in the BRITISH MEDICAL JOURNAL *of September 14th, and will be continued during the next few months. The reports of discussions in this and preceding issues are intended to give members who were not present a general idea of the proceedings.*

SECTIONS OF MEDICINE AND SURGERY

Friday, September 13th

Thyrotoxicosis

A combined meeting of the Sections of Medicine and Surgery to discuss the syndrome of thyrotoxicosis was presided over by Sir HENRY S. NEWLAND of Adelaide.

The opening speaker was Lord HORDER, who suggested that it would be better to consider the relation borne by the thyroid gland to the various clinical pictures met with, as well as the clinical pictures themselves, rather than to limit the discussion to the mere question of poisoning by a hypothetical thyroid dysfunction. The characteristic thyroid dysplasia might be only a secondary phenomenon, and the degree of enlargement of the gland bore no constant relation to the symptomatology. The cause of exophthalmic goitre remained unknown, but certain aetiological factors were emerging. There was a diathesis, but whether the flaw concerned the involuntary nervous system, the psyche, the endocrine balance, or some other part of the body was hidden. Sex had a predisposing influence, but septic foci were probably not concerned. Early diagnosis was difficult, for organic signs were usually absent; the observation of facies and behaviour was of great importance, as also were such changes in behaviour as irascibility, excessive emotional display, and the quick expenditure of an unusual amount of nervous energy without apparent fatigue. If modification of the patient's life did not ameliorate the symptoms there should be absolute rest in bed for at least three months. Efforts at specific therapy based upon the hypothesis of the thyroid dysfunction, whether by the use of serum from thyroidectomized animals or from animals inoculated with excess of thyroid secretion, had failed in the hands of most observers. Iodine might be useful, as also bromide and belladonna, but digitalis was not helpful, except in cases of cardiac dilatation. Lord Horder thought that partial thyroidectomy should be undertaken whenever the disease remained active after six months of carefully supervised medical treatment, when auricular fibrillation had developed, and when signs of congestive heart failure were present whether the heart rhythm was affected or not. The most striking results of this operation were seen in advanced cases, in which the vicious circle was complete, provided that the load of the procedure was not more than the patient could carry. It was possible that the known good results of total ablation of the gland might throw some light on the pathogenesis.

Sir THOMAS DUNHILL introduced the surgical side of this discussion by considering the aetiology of thyrotoxicosis, and pointing out that in the absence of accurate knowledge in this respect it must be emphasized that some patients could not be made safe for surgery, nor could a cure be certainly promised. He reviewed the more common complications, defining six groups—namely, auricular fibrillation with or without heart failure, glycosuria, mental derangement, emaciation, localized myxoedema (an erroneous term), and pruritus. The so-called myxoedema consisted of bilateral symmetrical patches of mucinous degeneration in the skin, usually just above the ankles, but sometimes extending to the toes and knees. It disappeared usually after an adequate thyroid operation, and in the speaker's experience did not recur. It was not true to state that all the poison was in the thyroid gland, and that therefore the greater part of the gland should be removed at one operation. In a case of severe toxic goitre the cells of the body were overcharged with secretion, and an operation might prove fatal. While excellent results might follow thyroidectomy, some patients might still remain on the borderline after the operation. In the difficult problem of when to operate in the "formes frustes" the basal metabolic rate often helped the decision; operation in an unsuitable case might do real harm. While medical treatment was rarely satisfactory in children, it was best to aim at controlling the condition as long as possible with the smallest amount of intervention. *X*-ray treatment found its most useful field in the early stages of the disease and in young people. In severe cases and older persons its results did not compare favourably with those of surgery.

Professor C. E. HERCUS (New Zealand) stated that thyrotoxicosis was very common in New Zealand, and that New Zealand physicians had to be "thyroid-minded." New Zealand had a higher death rate from this cause than any other British country. The toxic incidence and death rate was highest in the endemic areas, greater than anywhere in Australia and thrice as great as in Great Britain. Whether the cause was exogenous or endogenous, the facts remained that patients with an enlarged thyroid gland were much more liable thereby to thyrotoxicosis. In the thyroid clinic at the Dunedin Hospital all patients were admitted to a medical ward for full investigation, and were then followed up after operation. Cases of goitre without some evidence of toxicity were rare, and the former clinical division into primary and secondary goitre had no actual pathological basis. He had observed a frequent familial incidence among his cases.

Dr. A. W. HOLMES À COURT (Sydney) said that all types and varieties of the disease described by previous speakers had their counterpart in Australia. At the Sydney Hospital the principles laid down by Sir Thomas Dunhill and the Melbourne school of clinicians were closely followed. The therapeutic indication was to abolish the abnormal activity of the gland after the taking of iodine had produced the maximum remission; this remission usually occurred after a period of about two weeks. At the present stage of knowledge the means of producing permanent reduction of activity of the gland were two: irradiation and subtotal thyroidectomy. In a small proportion of selected cases a favourable result might frequently be produced by irradiation in expert hands, provided always that the disease belonged to the type in which there was thyroid hyperplasia, generally diffuse in character, without nodule or cyst formation or localized tumour. In regard to the so-called primary Graves's disease types the general consensus of opinion appeared to be that a subtotal thyroidectomy in the fully iodinized subject gave the best prospect of relief. It should be clearly recognized that in the treatment of such patients there was no antagonism or divergence between medical and surgical measures, rather that the closest co-operation should exist between physician and surgeon in the interests of the patient. The role of the physician should be to prepare the patient for operation and subsequently supervise a follow-up for at least two years, paying particular regard to evidence of recrudescent thyrotoxicosis or to the development of myxoedema.

Sir CARRICK ROBERTSON (New Zealand) analysed the results in 754 patients suffering from thyrotoxicosis operated upon by him during the past five years. Of these 80 per cent. were toxic. He was convinced that in New Zealand the toxicity of adenomatous goitre was increasing. He believed that nearly all these goitre patients eventually developed hypothyroidism, a result to which the indiscriminate use of iodine no doubt contributed. The

patients giving the most trouble in diagnosis were the psychoneurotic, but patients with early pulmonary tuberculosis, rheumatic heart disease, or myocardial degeneration also provided pitfalls ; but their condition was rarely associated with an increased appetite or an increased tolerance for cold. His practice was to remove from four-fifths to five-sixths of each lobe, and he aimed to do the operation in one stage if possible. He was satisfied that thyroid crises were not nearly so frequent as when half the gland was left behind. He was not convinced that preliminary ligature of the superior thyroid artery improved the patient, and deaths had been reported from this simple procedure. The chief complications in his series had been post-operative haemorrhage in thirty, loss of voice in sixteen, and tetany in ten patients Mortality amounted to 0.9 per cent. Two of the seven patients who died suffered from " woody " thyroid ; four suffered from the type described by Lahey as " apathetic " hyperthyroidism. These were the patients most suited to two-stage operations.

Dr. H. HUME TURNBULL (Melbourne) asserted that the role of the physician was confined to diagnosis. Medical treatment in his opinion was almost entirely without value. Patients sometimes recovered even without rest, while continuing to work, or, after remaining in bed in hospital for long periods, were discharged without having shown much improvement, but returned later for observation feeling much better. No real medical treatment existed apart from iodine administration, although both patient and physician deluded themselves for years in this regard. He was profoundly impressed with the results of surgical treatment. With regard to focal infection he thought that its eradication never enabled the patients to dodge surgical treatment. Dr. Turnbull had obtained much help in diagnosis from observations of the pulse rate during sleep ; if it was below 75 per minute the patient should not be considered a candidate for operation. In general, operation was rarely urgent in the younger patient, but in old persons the time factor became important. Thyroid secretion poisoned the heart in a definite manner, producing at first paroxysmal fibrillation and later permanent arrhythmia. In such patients a low basal metabolic rate was insufficient entirely to exclude hyperthyroidism as a cause of the fibrillation. Use could be made of iodine as a diagnostic agent, especially in nodular goitre, providing the patient was kept under close observation. He directed particular attention to the exacerbation that occurred fourteen days after stopping the drug. In patients with recurring nodules and arrhythmia the possibility of complete thyroidectomy should be considered.

Mr. ALAN NEWTON (Melbourne) stated that he had operated upon 512 patients, a number just sufficient to convince him of his ignorance. The increase in the death rate from Graves's disease in Victoria was by no means so startling as that in Great Britain. He had not often observed the complications described by Sir Thomas Dunhill, and asked whether he had also detected a regional variation in symptomatology. No doubt Sir Thomas's figures were influenced by the fact that he had dealt with the worst cases in two countries. In Melbourne it was unusual to meet a long-standing example of the disease. Mr. Newton described certain complications which might develop rapidly, of which one of the most troublesome was severe exophthalmos, apparently due to swelling of the external ocular muscles, and reaching such a degree that the eye might be lost through corneal ulceration. Another was the curious myasthenic change which affected the muscles of the upper half of the face and prevented voluntary closing of the eye. Recovery occurred following operation. In mild instances of Graves's disease medical observation should be closely continued. Iodine should be restricted to the immediate pre-operative period. The pre-operative period was of such supreme importance that the nurses should not be changed, and this phase should be entirely conducted by the surgeon. The mortality in his hands in private practice amounted to 0.4 per cent., with no deaths in the last 212 cases. At the Royal Melbourne Hospital he had lost 3 per cent. of 150 patients. In 118 cases in which a subtotal resection was performed at the Royal Melbourne Hospital eighty-six patients were apparently cured, three had mild symptoms, twenty-three required treatment for hypothyroidism, and four died some time after operation. He considered that *x* rays had their chief value when regeneration occurred after operation.

Dr. S. PERN (Melbourne) said that he knew of many patients who had been completely cured by removal of all septic foci. It was necessary not merely to open a focus of infection, but to eradicate the danger completely. Dr. S. V. SEWELL (Melbourne) held that treatment for focal sepsis should follow and not precede operation. The physician had no right to treat a patient, except in the very early stage. Dr. Sewell praised pre-operative irradiation of the gland. Until the exact aetiology was known the gland should be dealt with directly before circulatory distress appeared. Dr. C. E. DENNIS (Melbourne) asked Lord Horder whether he had seen any benefit from small doses of *x* rays continued over many weeks. He quoted a patient who had shown great improvement after this procedure. Formerly irradiation had been probably too strong, and was frequently associated with complications. Dr. HUGH POATE (Sydney) stated that in his experience in New South Wales classical exophthalmic goitre was rare, though patients with other signs of thyrotoxaemia were common. Young patients with fleshy thyroids and predominantly cardiac symptoms provided bad surgical risks, and were best treated by irradiation. In middle age irradiation became of less value. *X* rays were similarly of little use for patients whose symptoms were mainly nervous in type, and for those queer patients who gained weight instead of losing it.

Professor A. M. DRENNAN (Edinburgh) said that the preventive aspect of goitre had not yet been given emphasis. Goitre could be produced experimentally by the injection of thyroxine and pituitary extract, and this result could be prevented by iodine, more particularly when thyroxine was used. Endemic goitre was becoming less common in New Zealand, largely as a result of the efforts of Professor Hercus, which had resulted in the general use of iodized salt and, latterly, of a preparation from seaweed. If simple goitre could thus be prevented so could toxic goitre. The gland acted as a storehouse for iodine, and became enlarged to a point at which a balance was obtained between the size of the gland and the needs of the patient. Though a storehouse, the iodine concentration was actually low: a rise in concentration produced toxic goitre because the gland was then too large for the individual under altered conditions. Too much iodine in hyperplastic goitre caused excess storage. The aim of surgical treatment was actually to reduce the mass effect of a gland which was too large for the patient's needs. Dr. F. S. HANSMAN (Sydney) referred to certain experiments made at the Royal Prince Alfred Hospital, in which a negative phosphorus and calcium balance had been found to occur in hyperthyroidism probably due to an associated hyperparathyroidism. Efforts had further been made to see whether the calcium balance could be influenced by diet, etc., and whether any clinical differences were found in association. A negative balance was uninfluenced by rest and iodine, but following the application of deep *x*-ray therapy to the gland the balance became positive with improvement in clinical symptoms.

Lord HORDER, in reply, advised forbearance in terminology, though on this occasion he had been forced to use the terms exophthalmic goitre and hyperthyroidism synonymously. From the statements made by some of the speakers it appeared that greater differences might exist in Australia, but one had to be sure that one was not merely dealing with an early phase of the disease, in which all the cardinal features were not present. He could not understand Dr. Turnbull when he declared that the surgeon should have the sole right of deciding the time of operation ; though he agreed that the more advanced the case the better the surgical result. Surgery could help enormously by interrupting the vicious circle, just as splenectomy could help in splenic anaemia. Dramatic results followed when the surgeon was permitted to choose the right case ; but the stage, if operation was required, remained the sphere of the physician. One must be careful not to confuse the natural excitement of the patient during a medical examination with the signs of thyroid

toxaemia. He asked what was the evidence that the early case was necessarily a result of thyroid dysfunction. It had been stated by one speaker that the sufferer from Graves's disease was never restored to robust health, but Lord Horder assured the meeting that Sir Thomas Dunhill's patients really were. In conclusion he said that the earlier the operation was performed the less satisfactory became the result. "Use the operation too early if you wish to do thyroidectomy a disservice."

Sir Thomas Dunhill, in reply, expressed regret that physicians did not concern themselves more with the earliest cases. He was surprised that goitre in New Zealand should be so constantly associated with symptoms of toxaemia. In this regard one must be sure that the patient had not been taking thyroid gland by mouth prior to examination. He hoped that Professor Hercus would prepare more exact details of his cases for circulation among the members present. He was anxious to disillusion Sir Carrick Robertson if the latter considered that it was his habit to perform the operation in two stages. It was much easier to operate in one stage, but one must be careful to keep the patient alive for the second stage. Every year a few patients died while waiting for operations. There were surely many more on the verge of such a tragedy whose lives could be saved only by doing the operation in two stages. In reply to Dr. Dennis's question regarding the use of *x* rays in early cases, he thought that this measure was of value for patients seen in the very early stages at which they consulted the general practitioner, and he regretted that the general practitioner had not been heard more in this discussion. He had seen benefit result in 6 out of 30 very early cases, especially children. As regards adults, however, of 140 patients irradiated 118 had established auricular fibrillation following "cure" by this means.

SECTION OF RADIOLOGY AND RADIOTHERAPEUTICS

Friday, September 13th

Radiological Training

With Dr. H. M. Moran (Sydney) in the chair a discussion on radiological education and the teaching of radiology was opened by Major D. B. McGrigor (Frinton-on-Sea), who referred to the report of the Curriculum Committee of the General Medical Council, and outlined a system of progressive instruction. He summarized the radiologist's qualifications, showing how these should be catered for in the training school. The future of the non-medical assistant in radiography had been safeguarded by the excellence of the teaching and examination both in Great Britain and in Australia, but the general public still stood in need of instruction as to the limits of radiological diagnosis. Legislation for the control of radiological practice might be difficult, but it would have to come; Italy had laid down the most comprehensive scheme already, and in France the limitation had perhaps gone too far, the practice of radiology having been restricted to registered medical practitioners. Major McGrigor summarized the points for discussion as: the position of radiology in the medical curriculum; the choice and training of suitable men, and their qualifications; co-operation between the radiologist and other specialists for discussions on diagnosis; centralization of teaching and post-graduate work; the desirability of higher diplomas in advanced radiology; and the desirability of legislation, especially in therapy, somewhat on the lines of the new Italian law.

Dr. G. L. Buckley (Bournemouth) pointed out that valuable help was sometimes received from illustrations in the literature, though the quality of the reproduction was often indifferent. She urged the establishment of film libraries, furnished with pathological and other illustrative material. It was essential that the radiologist should have sufficient leisure to attend meetings of the various radiological societies. Dr. Buckley felt concern for the future of radiology in view of the fact that many specialists now tended to do their own *x*-ray work. She believed that the disappearance of the private radiologist would destroy the usefulness of radiology.

Dr. Keith Hallam (Melbourne) considered that much could be done in the teaching of anatomy to forward the science of radiology, particularly by cinematograph films of the heart and other moving parts. A living rather than a dead anatomy would thus be created. Screening for educational purposes he considered dangerous. Embryology was one of the bases of anatomical *x*-ray study, especially in regard to the development of the teeth, kidneys, and intestines. He further suggested that radiological training should be carried out by two different grades of instruction, one for general practitioners who owned their own machines, and a second, more complete, course for specialist radiologists. The radiologist should be a man of many parts, of wide clinical experience, and able to assert his opinion without at the same time asserting his personality. Regional anatomy, pathology, and embryology with a broad basis of general education were essential. Finally, Dr. Hallam indicated a coming radiological era when the radiologist would do no technical work but would confine himself to the consultative and clinical aspects of *x*-ray work. Dr. McGrigor, in reply, agreed that it would be an excellent step if radiologists could be graded by some authoritative body on the same lines as in the United States of America. He disagreed with Dr. Hallam that it was not essential for the radiologist to be proficient in the technical branches of *x*-ray work.

Examination of Stomach and Duodenum

Approaching this topic from the standpoint of the early diagnosis of cancer, the opener of the discussion, Dr. K. Stuart Cross (Melbourne), emphasized the importance of close collaboration between the radiologist and the clinician in charge of the patient. The physician should realize the technical difficulties which the radiologist had to face in the search for early pathological changes in the gastric wall with its highly irregular and multitudinous mucosal folds. Most gastric cancers, however, were so far advanced when first seen by the radiologist that they were easily diagnosable; the average interval between the onset of suspicious symptoms and the radiological examination was eight to ten months. Dr. Stuart Cross attempted to reconcile the necessity for the most thorough and exhaustive examination in certain cases with the need for keeping *x*-ray costs in general within reasonable economic limits. Re-examinations played a large part in the procedure suggested as a solution, and the necessity for these should be recognized by the physician. A distinction was drawn between the problem of the early, or at least earlier, diagnosis of cancer on the one hand and that of radiological diagnosis of early cancer on the other. In the present state of knowledge the latter was mainly an affair of radiological technicalities and the interpretation of *x*-ray evidence. The earlier diagnosis of cases of cancer, however, would appear to depend mainly on general principles, and rested not so much with the radiologist as with the medical profession as a whole and the general community.

Dr. H. McCoy (Adelaide) suggested that the adoption of a standard and of a special barium meal examination would lead to failure to diagnose smaller lesions. He reviewed the work of Cole on the examination of the stomach, and agreed with Cole's insistence that the silhouette view of the stomach in profile was the sheet anchor of *x*-ray diagnosis. Cole's second fundamental of examination was the investigation of the special mucosal folds of the stomach, his third the examination of the pliability of the mucosa, and his fourth the general study of the mucosal pattern or rugae. In estimating the pliability of the stomach wall Dr. McCoy advocated Frankel's method of multiple exposures on one film. The technical difficulties of demonstrating rugae were considerable and the pitfalls of incorrect interpretation legion. Most radiological errors in these cases were confined to the cardia, where the need for information was greatest. In particular the radiological evidence of gastritis was unreliable. The demonstration of Cole's first and fourth fundamentals constituted a reliable indication of duodenal

ulcer—namely, a deformed cap together with irregularity of the mucosal folds. The demonstration of a "fleck" in the duodenal cap was not a reliable indication of ulcer, unless the fleck was seen definitely and constantly in more than one film.

Dr. John O'Sullivan (Melbourne) thought that every patient sent to hospital with a diagnosis of early carcinoma of the stomach should be investigated as completely as possible, and he deprecated the establishment of separate standard and special procedures. He thought that elaborate apparatus was not necessary, and that the clinical outlook of the radiologist was of far greater importance. He advised air filling of the stomach as a means of demonstrating fungating carcinoma of the fundus. Posturing of the patient, with multiple films, he regarded as very important for the best results. Dr. E. W. Frecker (Sydney) spoke of the necessity for examination with the patient in the horizontal position to demonstrate lesions of the cardia. These were liable to be missed if the films taken did not include the whole of the stomach. He further pointed out that the projection of the apparent so-called perforating ulcer on the lesser curvature was often due to spasm of the muscularis mucosae and did not imply a large and deep ulcer. Operative findings in some of these cases revealed only a superficial ulceration of the mucosa.

SECTION OF OBSTETRICS AND GYNAECOLOGY

Friday, September 13th

Heart Disease in Pregnancy

Professor Marshall Allan took the chair on the third day, when a discussion on some aspects of heart disease complicating pregnancy was introduced by Professor J. C. Windeyer (Sydney), who read a paper written by Dr. H. C. E. Donovan (Sydney).

This paper was based on a general impression of cases seen in hospital and consulting practice, and on an analysis of fifty-two cases which had been treated in the ante-natal wards of the Women's Hospital, Sydney. The percentage of heart cases requiring hospital treatment in relation to deliveries was 0.255, a lower figure than that usually recorded, but cases of organic heart disease with few or no symptoms were not included in the estimation. The two maternal deaths in the series were due respectively to pulmonary embolism following Caesarean section and advanced myocardial degeneration in a thirteenth pregnancy. There were seventeen Caesarean operations; three patients had labour induced; and four had therapeutic abortion by the vaginal route or abdominal hysterectomy. The remainder had a natural labour, but in most instances the second stage was shortened by forceps. The most common type of heart lesion was mitral stenosis. It was concluded that most patients with heart disease were capable of undergoing pregnancy, but labour tested the cardiac efficiency. Therapeutic abortion was indicated principally for reinfection during pregnancy, the few cases which were getting worse in spite of rest in bed and the administration of digitalis, the more severe forms of aortic disease, and cases of congenital heart disease. In deciding for or against Caesarean section the general and obstetric history and the capacity for household work were the main crucial points. A surgically induced labour might be, and usually was, more trying than normal labour; the risks were less easily calculated than those of section, and it was rarely good treatment after three months' gestation. The purely operative risks of Caesarean section had been so much reduced by the lower uterine segment procedure and the newer antiseptics, especially dettol, that the operation might now be undertaken with more confidence. Acute pulmonary oedema was a serious complication of pregnancy in these cases; venesection, oxygen, and morphine were indicated, and at least a pint of blood should be withdrawn. In early pregnancy in cases of aortic disease the uterus should be emptied; if seen only later, an attempt should be made to carry on to Caesarean section as soon as the child was viable. Mild thyrotoxic cases would withstand labour strain if prepared by adequate rest.

Dr. Crighton Bramwell (Manchester) said that prognosis in heart disease associated with pregnancy should be based on the result of very carefully recorded cases. He asked: (1) What was the immediate additional risk to the mother of pregnancy superimposed on cardiac disease? (2) What was the risk of permanent damage to the mother's heart by the pregnancy? He did not agree with Dr. Donovan that congenital heart lesions were an indication for the termination of pregnancy, as in his opinion the patients went through the pregnancy without any untoward effect. He did not take much notice of valvular lesions *per se* in prognosis, but he looked upon an auricular fibrillation or a history of heart failure with engorgement prior to pregnancy as definite indication for termination of the pregnancy. and he advised such patients never to become pregnant again. The method of terminating pregnancy he left to the obstetrician, insisting, however, that the patient should be "rested" in bed and that the fibrillation or cardiac failure should be treated. In estimating the effect of pregnancy on a heart that had been damaged by rheumatic infection, he pointed out that, as rheumatic heart disease was progressive, it was most difficult to arrive at a final determination. In all other cases of heart disease associated with pregnancy he preferred to allow the pregnancy to progress under strict supervision, watching for and treating any cardiac failure, as in these cases prompt treatment often brought about a good result. He advised that the second stage of labour should be shortened by forceps delivery when the os was fully dilated.

Sir Ewen Maclean (Cardiff) advocated the formation of standards both for the treatment and for the indication of termination of pregnancy in cases of cardiac disease. On investigating fifty-two patients with heart disease admitted to the Cardiff Royal Infirmary he had come to the conclusion that ante-natal treatment was essential, that the age of the patient influenced prognosis and that multiparae had a worse prognosis than primiparae, that those patients with large families had a worse prognosis than those with small families, that mitral stenosis was the commonest lesion, and that congenital heart affection had a good prognosis. In treatment he advocated rest in bed before delivery as being very important. Patients with heart failure should have the cardiac lesion treated first, and morphine and hyoscine should be given during the first stage of labour and patients should be delivered by forceps when the os was fully dilated. He found that there was an increased foetal mortality when the mother suffered from cardiac disease, and that surgical induction of labour did not seem to upset the heart further when it was properly treated before induction was attempted.

Mr. J. Bright Banister (London) said that congenital heart lesions did not increase the risk of pregnancy to the mother. In his opinion one attack of heart failure was not sufficient evidence upon which to empty the uterus, but it was necessary to have recurrent attacks. He would like to stress the danger to the mother in the second week of the puerperium, as in his experience many died suddenly during this period. He subordinated obstetrical to medical treatment. The Chairman (Professor Allan) advocated treating the heart condition first, then dealing with the pregnancy later. By doing so the results, in his experience, were satisfactory.

SECTION OF DISEASES OF CHILDREN

Friday, September 13th

Intussusception

Opening the discussion on this subject, with Dr. Robert Hutchison presiding, Dr. P. L. Hipsley analysed statistically a series of 486 cases treated by ten surgeons at the Royal Alexandra Hospital for Children, Sydney, during the years 1921 to 1934 inclusive. His paper appeared last week (p. 717).

Dr. W. Vickers (Sydney) said that Dr. Hipsley's was the lowest death rate ever recorded, and Dr. Hipsley's

contribution was the greatest since the work of Clubbe. He wished to emphasize the value of hydrostatic pressure as a universal measure in the treatment of intussusception. Some had been worried by the appearance of the patients at times when hydrostatic reduction was being persisted in, with a view to the harmful effect on the outlook should subsequent operation be necessary. The objection that this method could cause perforation of the bowel was purely theoretical, for only one perforation had occurred in a series of over 300 patients. He recalled one occasion on which, after obtaining the passage of faeces and flatus, it had been found that a tight intussusception was still present. At times, perhaps by persisting overlong with this method, subsequent operation had been found to be impossible on account of the condition of the patient. The other objection advanced had been the extra length of anaesthesia which was necessary. While he mentioned these criticisms of the method there were compensating advantages. When reduction was effected operation was often unnecessary. In any case the procedure lessened the amount of intra-abdominal manipulation that would be required. The use of hydrostatic pressure should be the method of choice in large centres and for early cases.

Dr. H. C. Colville (Melbourne) said that the unvarying clinical story was a challenge to find the cause of intussusception. Most of the patients were between 6 and 9 months old, and were as a rule healthy breast-fed babies. The intussusception started in the area of lymphoid tissue and Peyer's patches, and some of this tissue was always inflamed and an associated lymphadenitis was always found. There was evidence of spasmodic contraction of the circular muscle fibres as well. The association of these two factors reminded one of the incisura which could be demonstrated radiographically in peptic ulcer cases. Dr. Colville also wondered why the Peyer's patches should become inflamed. The fact that so many of the babies were being fed at the time on the breast milk of late lactation suggested that investigation might reveal the presence of some irritating content. He was not convinced that hydrostatic pressure should be adopted as a routine ; in the fatal cases death occurred because of the pathological processes present, and not as a result of the operation. With the application of warmth and the assistance of a competent anaesthetist the results of laparotomy were very good. It was true that adhesions to the wound sometimes caused obstruction later, but he always advocated the advisability of careful and close apposition of the peritoneal edges before closing the abdomen.

Dr. H. Douglas Stephens (Melbourne) said that he had not been impressed years ago with the value of the hydrostatic pressure method, and he had not been able to diagnose by manipulation under anaesthesia whether reduction had been completely effected. Dr. Hipsley's paper and his remarks, and the low mortality rate of 6.6 per cent., were important to Melbourne practitioners. Dr. Stephens had satisfied himself that the apex of the intussusception was often in the caput caeci. The ileo-caecal variety was comparatively easy to reduce ; by slipping the fingers down into the pelvis in advance of the intussusception one found that it would run round quicker than the fingers could move round the bowel. The variety that was most difficult to reduce was the equally common ileo-colic complex intussusception. Dr. S. F. McDonald (Brisbane) wondered whether intussusception was becoming less common. In his experience there seemed very much less than in years past. He asked what anaesthetics were being used. Dr. R. M. Downes (Melbourne) described his experience with irreducible or gangrenous cases when it was decided that resection was necessary. He passed two or three silkworm-gut sutures through the abdominal wall, and brought the portion to be resected outside the closed abdomen and operated on it there. With this procedure considerable improvement occurred in the condition of a child who was worrying the anaesthetist. In the next year he had performed extra-abdominal anastomosis for three patients with intussusception, and all had recovered. They were genuine cases in which resection was absolutely necessary.

Mr. F. C. Pybus (Newcastle-on-Tyne) had always regarded intussusception as an accident, but he thought that there might be some predisposition to oedema leading to the formation of an oedematous patch in the bowel wall which formed the seat of an intussusception. He remembered the circumstances in the family of one doctor. The mother was subject to angioneurotic oedema, and some ten years ago one of her children had intussusception. Since then another child, at the age of 2 years, had intussusception, which was reduced very easily. He wondered whether the hydrostatic reduction could be carried out more gradually by gentler methods than had been described by Dr. Hipsley. If the baby were held upside down on a Bryant frame and the reduction were gradual it seemed possible to do without the anaesthetic. Dr. Robert Southby (Melbourne) referred to the occasional unfortunate occurrence of the breaking down of the abdominal wound, and suggested the use of a split bicycle tube or adhesive strapping completely encircling the body for the prevention of this disaster. Dr. R. Hutchison mentioned the possibility that physicians could reduce intussusception themselves instead of referring the patients to the surgeon.

Dr. Hipsley, in reply, said that the position in which the baby was held did not affect the pressure required for reduction, and that as the dorsal position was more comfortable there was no need to hold the baby upside down or to use a frame. He always preferred ether anaesthesia, but had no objection to local or spinal anaesthesia. Manipulation of the abdomen by itself was not sufficient to effect reduction as a rule. The manner in which the abdomen became distended by the water introduced enabled him usually to be quite sure that reduction was complete. The percentage figures for the different varieties were not of much use, because it was impossible to include those cases which were reduced without operation ; he thought that the ileo-colic caput caeci and ileo-caecal valve varieties were about equally distributed. The occurrence of intussusception seemed to him to be rarer nowadays ; but as he was now on the senior staff, and many of the operations were done by the junior surgeons, and as no figures were available, he was not in a position to make a definite statement.

Pink Disease

A discussion on pink disease was opened by a joint communication by Dr. Jeffreys Wood and Dr. Ian Wood (Melbourne). Their paper appeared in the *Journal* of September 21st. After a historical survey the aetiology and pathology were considered, with special reference to the part played by infection, possibly by a virus. Three clinical phases were distinguished: a first acute phase consisting of coryza, pyrexia, malaise, irritabilty, loss of muscular power, photophobia, and an irritating rash ; a second stage in which the classical symptoms were fully developed, and the pinkness of the hands and feet was evident ; and a third stage of gradual recovery, beginning in the third month and lasting for several months.

Dr. Robert Hutchison said that pink disease was relatively less common in England than in Australia, and in the past five years there had been only thirty authentic cases. It was a most exasperating condition ; he was baffled to suggest a cause, and the treatment was unsatisfactory. It was new to him to hear the history of Selter's description of it so far back as 1903, but he had no doubt that pink disease occurred before that, although it was not recognized. Ten years later than Dr. Swift he had identified the condition at Great Ormond Street. Curious little outbreaks or islands of the disease occurred in England but not noticeably in London ; rather in the Midlands, in the neighbourhood of Birmingham, where Dr. Parsons had encountered it. The two great theories of pathogenesis were the deficiency theory and the infective theory, and he had great difficulty in accepting either of them. Professor Peters, in Oxford, was investigating certain fractions of the vitamin B complex, and some of these were being tried out at Great Ormond Street. Professor Peters regarded the results as suggestive but by no means certain. Nor was the infective theory attractive ; pyrexia was not constant, but one could not exclude secondary infection as a cause of rise

of temperature. It had been said that the condition occurred predominantly at that period when infections are prone to occur, but so did nutritional disorders such as rickets. One could not rule out the possibility that it was an infection of some sort. Again, it had been thought that a virus might be the cause. This seemed to Dr. Hutchison to be too easy an explanation. There appeared to be no specific remedy or short cut to recovery.

Dr. EDGAR STEPHEN (Sydney) found that treatment of these patients in their own homes was more satisfactory than treatment in the hospital, and they were admitted to hospital only in exceptional circumstances. Of sixty-eight patients with pink disease admitted to the Royal Alexandra Hospital for Children in Sydney, 23 per cent. died. These patients had been severely ill, and much time had been lost in combating insomnia unsuccessfully and in overcoming anorexia. The prognosis was worse in such circumstances and when the sweating was excessive. At times the diagnosis was in doubt when the raw beef hands and feet were not characteristic, and sometimes the *x*-ray department had been able to help. As in scurvy there were certain features in the appearances of the centres of ossification; in particular a glassy appearance had been noted. It was wise to use intranasal feeding at an early stage to be sure that one was on the safe side. The administration of the food was difficult, but by refeeding and persistence a good nurse could do wonders. Cross infections had not been the cause of death in this series. Two children had died of bronchopneumonia, but sudden heart failure was almost always the cause of death. Pyelitis had been a fairly frequent complication. He had used atropine frequently, but had not derived any comfort from its administration. He had thought at one time that the excessive sweating might lead to a loss of sodium chloride, and had used half-strength normal saline solution by mouth, but not with any confidence. He had since found out that the amount of sodium chloride that would be lost if the patient sweated all day long would be too small to matter. He drew attention to the use of chloretone for the insomnia.

Dr. S. F. MCDONALD (Brisbane) said that the condition had been recognized in Queensland since 1920 following upon the excellent description of the condition by Dr. A. Jeffreys Wood, but he thought that it was still often missed. The distribution was widespread in Queensland, and all nationalities appeared to be affected; he had not noted any cases occurring among aborigines, half-castes, or Kanakas. The treatment used had evolved much on the same lines as had been described in the opening paper. It was interesting to remember that in 1925 A. F. Hirst had ascribed pernicious anaemia to a streptococcal infection in the duodenum combined with the functional disturbance of the stomach, but he had not hinted at any deficiency factor then. There were two important points in favour of a neurotropic virus with special incidence on the sympathetic system in the aetiology of pink disease. These were the tendency for several cases to occur in the one family and the onset at an early age which, as there was not any recurrence, appeared to bring about a lifelong immunity. He had treated sixteen patients by liver feeding, and some did seem to be very well with it.

Dr. ROBERT SOUTHEY (Melbourne) supported Dr. McDonald's views concerning the possibility of a neurotropic virus as an aetiological factor by mentioning the close analogy with certain early cases of poliomyelitis. The lassitude, the atonicity, the sweating, and the irritability and depression were common to both conditions. Further, there was a predisposition in certain families to that type of infection. He had encountered poliomyelitis in three generations of one family. He remembered one child who had pink disease in infancy and later developed poliomyelitis, and at 6 years of age had herpes zoster. On this theory he had treated a few patients with pink disease by the administration of pooled normal human serum, which he thought had been of some use in poliomyelitis. He felt that the clinical condition of these patients had improved more quickly than the average, but the series was too small for any definite conclusions.

Dr. F. H. LE MESSURIER (Adelaide) preferred the name erythroedema for the condition entitled pink disease by the previous speakers; he felt that it was associated in some way with upper respiratory infection. Dr. A. P. DERHAM (Melbourne) directed attention to the pinkness of the tympanic membranes in this condition and the confusion that arose at times in the diagnosis from middle-ear disease. He had known of several instances in which unnecessary paracentesis had been performed. Dr. F. K. NORRIS (Melbourne) mentioned the desirability of a frank discussion with the parents at an early date concerning the probable duration and nature of the illness. He had once seen a Chinese baby with pink disease, and had encountered peripheral neuritis with double foot-drop. He used belladonna, and thought it was an advantage at times, and as a routine he applied some form of colloidal silver drops for the eyes to prevent secondary infection. He thought that painting the skin with iodine and spirit was painful and preferred a 2 per cent. solution of mercurochrome. He agreed that peroxide of hydrogen for the mouth was much better than borax and glycerin. Dr. LUCY GULLETT (Sydney) emphasized the importance of warning the mother that the child wanted rest and did not need to be amused. She thought that they should look further into the question of the association of this condition with pyelitis or some similar urinary infection. Dame JEAN CONNOR (Melbourne) said that as Australian doctors had been so closely associated with the description of this disease they should make up their minds to do something to settle the causation finally. At present she was completely open-minded. She thought that the causative virus theory was very hard to prove. Perhaps the condition might be due to contact with some substance which was innocuous until the patient was exposed to light. She drew an analogy with the effect on lambs of the active principle of St. John's wort, which, when eaten, caused erythema and urticaria. She had read of the work in England along these lines and understood that it was claimed that the condition cleared up quickly when the patient was protected entirely from light.

Dr. IAN WOOD, in reply, said that it could be shown whether a virus infection was the cause by special culture methods and the results of careful histological examination. He had submitted his evidence to Dr. Greenfield in England, who said that from the histological finding there was not the slightest suspicion of virus infection. Dr. Burnet, in Melbourne, had tried every known method of culture for viruses and had always failed. Dr. Wood had not used atropine to any great extent. He had been depressed by the way in which comparatively mild cases went downhill after admission to hospital, and regarded it as a grave danger to have to admit them.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE

Friday, September 13th

Psychoses of Adolescence

With Dr. A. W. CAMPBELL (Sydney) in the chair, Professor W. S. DAWSON (Sydney) opened a discussion on the psychoses of adolescence. His paper appeared in the *Journal* of October 12th.

Professor K. H. BOUMAN (Amsterdam) described with the aid of lantern slides researches conducted by himself and others over a number of years into the post-mortem appearances of the brains of patients who had suffered from schizophrenia. Microscopical examination revealed definite loss of cellular structures in various layers of the cerebral cortex. Moreover, the areas of the cortex so affected showed a definite distribution. It must be concluded from these observations, correlated with those of Mott and others on degeneration in the endocrine glands in schizophrenics, that dementia praecox had a physical basis. Nevertheless he considered that there was justifica-

tion also for the psychological approach to the problem, and that both physical and mental aspects had a common meeting ground in the question of treatment.

Dr. Campbell raised the question whether there was any difference between the insanities of adolescence in Australia and in England, particularly in overpopulated areas such as Yorkshire and Lancashire, where he had once worked. The contrast between these places and the freedom in open spaces of Australia suggested the possible reason for the opinion he held that there was a difference. In his long experience as a consultant he had been led to believe that so-called nervous breakdown which conformed mainly to the manic-depressive type was in many cases relatively slight, both in severity and in duration, compared with similar cases in England. He asked whether personality traits observed in children could enable one to foretell the onset of dementia praecox. His experience at the Royal Alexandra Hospital for Children, Sydney, had not enabled him to say that he could. He realized that the wards of children's hospitals were not the right place for obtaining the necessary data, nor could one rely on the memory of parents. The desire of a child to escape from the paternal presence was no indication of a psychosis. He thought that the question of treatment was a very difficult one, and he was glad to hear Professor Dawson say that in many cases there was a definite hope of successful treatment.

Dr. C. Farran-Ridge (Melbourne) dealt with the problem of the prevention of dementia praecox by other than eugenic measures. As the causes which really engendered it were unknown, efforts to prevent its development in predisposed persons had to be directed towards maintaining their bodily health at a maximum and providing for them shelter, guidance, and habit training. Good bodily health was of paramount importance, since time and again one met with young persons who, it seemed, might have avoided a breakdown if their bodily health had not become impaired. Predisposed children should be sent to a day school rather than a boarding school, to ensure their obtaining those prime essentials, good food, undisturbed rest at night, and help and guidance when they needed it. Their natural timidity and lack of self-confidence should be combated by having them taught boxing and jiu-jitsu, elocution, and public speaking. They were apt to take unreasonable dislikes to certain persons, and were liable to be seriously damaged mentally by bullies and psychopathic personalities among their schoolfellows, and by unsympathetic, sarcastic, and non-understanding masters. For these reasons it might sometimes prove necessary to remove them from school. It was undesirable that potential precocious dements should become morbidly interested in religion, and formal religious instruction should play a subordinate part in their education. The truth of the proverb that God helped those who helped themselves should be impressed on them, for they were only too apt to make prayer a substitute for effort. If it were observed that a young person's mind was being seriously disturbed by religious questionings an endeavour should be made to suppress religious practices as completely as possible. They should be helped in every way in dealing with the problems of sex. They were so likely to acquire the habit of masturbation that early and definite prophylactic instruction should be given to them about it. Chastity should be preached to them, if only for the reason that they were not of the stuff that libertines and sexual adventurers were made of. An effort should be made to inculcate into them sane and healthy ideas on the subject of sex. Sloppy and romantic ideas should be discouraged, and they should be taught as much worldly wisdom as possible. A wise choice of occupation was of great importance. In general it could be said that the more regular and routine their work was, provided always that it was congenial, the more suitable it would be for them. They should be trained from an early age to face facts, and should be discouraged from morbid day-dreaming. Potential precocious dements tended to shrink from responsibilities, to decline opportunities, to evade social duties, and to avoid making decisions. Before criticizing them it had to be remembered that dementia praecox was based on a real organic inferiority, and that the fact that its victims were incapable of effort and unable to decide was the very essence of their malady. They could be trained only to a limited extent. When the predisposition was strong no environment, however favourable, no training, however well directed, would suffice to avert the development of dementia praecox.

Dr. J. K. Adey (Melbourne) confined his remarks to early cases of dementia praecox, particularly as regards the prognosis. Kraepelin and others had admitted that some patients with dementia praecox recovered. Professor Robertson of Edinburgh had drawn attention to the possibility that these cases were due to exhaustive conditions rather than to dementia praecox. Dr. Adey had observed in a large number of these cases the frequency with which the patients showed cyanotic hands and cold extremities even in warm weather. Attention had also been drawn to small hearts and a small lumen to the aorta found in many cases. All patients dying in the public mental hospitals were subjected to post-mortem examination, and he had found that 40 per cent. of the cases of dementia praecox showed these conditions. In his opinion one could correlate the small hearts and the cyanotic hands, and separate this 40 per cent. as being of a definite type. Among a series of forty-five patients whom he had sent for radiological examination twelve were reported to have small hearts and aortas. There were no recoveries in the twelve cases. There were six recoveries in the remainder.

Dr. J. F. Williams said that when he had started work at the Melbourne Children's Hospital psychiatric clinic he hoped that he would be able to anticipate future cases of dementia praecox by observing abnormal personality traits, but his hopes had not been fulfilled. In connexion with the clinic they had a nursery school for children up to 6 years of age. Many of these children suggested pre-psychotic states. Under the influence of nursery school conditions, in which interference by adults was limited to the minimum, personality defects had quickly become modified ; even those children showing negativism and other behaviour abnormalities in greater degree than was shown in a normal range, and who were probably pre-psychotic, had recovered. Nursery schools were very important for the management of difficult children. Professor J. P. Lowson (Brisbane) said that he was interested chiefly in psychological methods of treatment, such as psycho-analysis. Most of the patients with dementia praecox whom he had seen had been too inaccessible, but he had reached certain conclusions from his experience with psychosis in general which doubtless would be applicable to dementia praecox. In the first place, these patients were not nearly so unmodifiable by psychological means as was formerly believed. Secondly, it was necessary to persevere with these cases in spite of repeated discouragement, as it was hopeless to expect any result in a short time.

Dr. H. F. Maudsley (Melbourne) approached the subject from the clinical standpoint. He drew attention to the fact that adolescents frequently passed through a stage with symptoms very similar to those of dementia praecox, but recovered and led normally useful lives. On the other hand, there was a type of dementia praecox, as Professor Bouman had shown, with an acute onset and deterioration of neurones, which was a somewhat different disorder. He suggested the following classification as a basis for the clinical approach to these cases: (1) the acute pernicious type, with no early personality traits ; (2) the subacute type, with remissions and exacerbations ; (3) a temporary psychosis, with clinical symptoms of dementia praecox and recovery.

Malarial Therapy and Neurosyphilis

Dr. C. Farran-Ridge read a paper on the influence of malarial therapy on the serological reactions of cases of neurosyphilis, with special reference to the Vernes test. He explained that this communication might be regarded as a preliminary account of a joint inquiry conducted by representatives of the Mont Park Mental Hospital and of the bacteriological department of the University of Melbourne. The clinical part of the work had been done by Dr. C. P. D. Brothers, while the Vernes and Wasser-

mann tests had been carried out by Dr. Gundersen. Professor Woodruff and Dr. Farran-Ridge himself had taken an active interest in the investigation, which would never have been undertaken had it not been for the existence of the Vernes test. This rendered it possible to make, by an optical method, absolute measurements of the degree of flocculation produced in syphilitic sera by an antigen consisting of an alcoholic extract of horse's heart previously dehydrated and treated with ethylene perchloride. The authors' recent experience confirmed their opinion that the cell count was the most valuable of all tests performed on the cerebro-spinal fluid, and formed the best guide to treatment. The fall in the cell count following malarial treatment was often very abrupt and striking. The results of the Vernes and Wassermann tests did not always run parallel: the former usually became negative before the latter, both in the serum and in the cerebro-spinal fluid.

Professor K. H. BOUMAN (Amsterdam) said that since 1921 he had treated over 700 cases of dementia paralytica with malaria, with very satisfactory results. It was not sufficient to give malaria only ; anti-luetic treatment, such as with neo-salvarsan, must follow. Patients so treated showed definitely better results than those in a series treated solely with malaria. In Amsterdam they originally gave intramuscular injections of blood from patient to patient, but now had a system of mosquito inoculation which was much better. Dr. J. BENTLEY (Perth, W.A.) said that in Western Australia interesting work had been done, which was mentioned at the last Australasian Medical Congress, on the manner in which malaria acted in general paralysis of the insane and other syphilitic manifestations. They noticed that if malaria was given to returned soldiers who had had typhoid inoculations and who did not react to the Widal test the result of the Widal test became strongly positive. The inference was that if there were any antibodies in the blood these were intensified by malarial infection.

SECTION OF ORTHOPAEDICS

Friday, September 13th

Fractures of the Spine

The second day's proceedings in this Section opened with a discussion of spinal fractures, which was introduced by Mr. S. T. IRWIN (Belfast), with the President, Professor HEY GROVES, in the chair.

Mr. Irwin pointed out that the great gains in knowledge since the war and the high percentage of spinal cases in hospitals due to motor accidents had resulted in a marked improvement in the diagnosis and treatment of these conditions. He reviewed thirty-four cases of fracture of the spine which had been admitted to the Royal Victoria Hospital between 1931 and 1934. Indirect violence was the commonest cause, flexing the trunk acutely at the point where bony support was lacking—namely, in the dorso-lumbar region and, more rarely, in the cervical region. Mr. Irwin then dealt in detail with fractures at the different sites, indicating the preferred lines of treatment. Compression fracture of a vertebral body was the commonest form ; the soft tissues often escaped gross injury. It might follow very slight violence, and in some cases might be easily overlooked though clearly recognizable by a radiological examination. The results of correct treatment were usually good ; the method of reduction recommended by Watson Jones had been employed for nearly all cases in the Royal Victoria Hospital since 1931. An attempt had been made to follow his somewhat idealistic programme of after-treatment, which comprised early spinal exercises, early assumption of the erect position, and early return to work, but it was admitted that many of the suggestions made by Watson Jones were still open to criticism.

Mr. F. C. PYBUS (Newcastle-on-Tyne) said that his experience corresponded with that of Mr. Irwin in regard to the statistical facts mentioned. Concerning treatment he was not in favour of routine reduction and plaster application ; each case should be treated on its merits. It was his practice in some cases to do no more than put the patient to bed and allow such movement as was permitted by pain. In other cases he also used Watson Jones's method of reduction and plaster fixation. Mr. J. B. COLQUHOUN (Melbourne) said that his experience of treating fractures of the spine was limited to one or two cases. For reduction of the deformity and application of the plaster he advised the procedure he was accustomed to use in cases of tuberculosis of the spine. He issued a word of warning against the indiscriminate application of plaster jackets by surgeons not conversant with plaster technique. Mr. THOMAS KING (Melbourne) disagreed with Mr. Pybus's statement that some patients could be treated merely by recumbency. In his opinion all patients should be treated in plaster-of-Paris and encouraged to walk. He outlined his favourable experience in the treatment of bed-sores by a mixture of cod-liver oil in vaseline.

Physiotherapy for Injuries

Mr. E. B. M. VANCE, orthopaedic surgeon to the Royal South Sydney Hospital, opening a discussion on physiotherapy in the treatment of injuries in general and orthopaedic practice, said that this form of treatment had declined from the zenith it had reached in the war years. He traced its fundamental principle to the work of H. O. Thomas, who had taught the value of active exercise in promoting the restoration of damaged tissues. Modern physiotherapy cajoled reluctant and hesitant limbs back to action. Its resources comprised massage, heat, electricity, passive motion, and active motion. For cases of recent injury massage was useful in dispersing the exudate round a torn ligament or relaxing muscular spasm after fractures. Hot-air machines of different kinds were indicated in old scarring, in indolent sluggish wounds, in fibrositis, and in non-active arthritis. The warm running-water bath and the whirlpool bath deserved to be revived for bad open wounds, compound fractures, septic cases, and conditions which would be benefited by combined heat and gentle massage. Contrast baths formed an exceedingly valuable remedy for sluggish circulation and oedema after old injuries. Dry heat before massage and moist heat (baths) before muscle re-education was a good general rule. Electricity had its uses in revealing the capacity for muscle movements in patients who had lost the conscious control of them. Faradic testing distinguished between organic and functional nerve lesions. Galvanic stimulation was indicated in the post-operative treatment of nerve suture, provided that the paralysed muscle could be stimulated without the current affecting the unparalysed ones. It was useful, for example, in keeping the interossei from wasting too much while awaiting the repair of an ulnar nerve lesion. Passive movement was the most difficult and most dangerous of all physiotherapeutic procedures ; when it did no harm the patient would have got better with natural use or exercises, while in cases in which it was used unwisely the results were calamitous. The pitfall consisted in moving the insufficiently recovered articulation, which Thomas's test of recovery rendered capable of detection. Mr. Vance concluded with a description of active movement and muscle re-education, including occupational therapy.

Mr. S. A. S. MALKIN (Nottingham) found himself in agreement with Mr. Vance on all the points mentioned, but he felt even more strongly than Mr. Vance on the need for prescribing treatment in accurate terms. He quoted the report of the B.M.A. Committee on Fractures, urging the need for unity of control, and he described methods for ensuring this unity of control and continuity of treatment. He thought that physiotherapy had fallen into disrepute for two reasons—namely, that the physiotherapeutist was often asked to achieve the impossible, and that long attendance at a massage department often engendered a state of mind in the patient inimical to recovery. While in the young little was needed, physiotherapy properly supervised was useful in the elderly for the sake of encouraging the patient. It was, of course,

always needed after a manipulation, to maintain the range of movement by assisted active movements. The question of remedial workshops was coming to the fore in England, and they were more valuable than the usual type of massage department because they maintained the interest of the patient. He stressed the point that many of the good results obtained in the physiotherapeutic department were attributable to psychotherapy.

Mr. C. W. B. Littlejohn (Melbourne) said that Mr. Vance's paper afforded him no excuse for argument. He stressed the necessity for active movement as soon as possible after an injury. If this was always practised there would be less need for physiotherapy. He thought that Hilton's essays on "Rest and Pain" had done much harm. His plan was to exercise the muscles concerned until the patient could use them himself. He believed that the application of heat was of value in liquefying the exudate which followed an injury, but merely as a preliminary to exercise. Electrical stimulation was of great value in cases in which the patient had to be shown that the muscle was not incapable of movement, but was abandoned early. Passive stretching was useful if adhesions were soft, but forcible manipulation under anaesthesia was necessary in old cases. The psychological effect of physiotherapy was important.

Mr. L. Betts (Adelaide) said that physiotherapy was unnecessary if active movement had been practised from the outset, and, in any case, massage, heat, etc., should be used only as adjuncts, and very definite indications should be present. The teaching of the limitations and benefits of physiotherapy in the curriculum was faulty and should be improved. He agreed with Mr. Malkin that continuity of control was an urgent necessity. He completed his remarks by saying that the greater the surgeon's skill and knowledge, the less his need of physiotherapy.

Mr. L. J. A. Parr (Sydney) accepted the challenge thrown down by the previous speakers, but he admitted that only in collaboration with the orthopaedic surgeon could good results be obtained. His present practice was to employ a short period of treatment by radiant heat and then to return the patient to the surgeon for manipulation under anaesthesia. The patient should then be treated by assisted active movements and stretching. The teaching of physiotherapy in the curriculum was *nil*, and, as a result, doctors sent their patients to so-called "gymnastic institutes" because they were ignorant of what a trained physiotherapeutist could achieve.

The President, Professor Hey Groves, said he was much interested to observe that the beliefs on this subject in Australia coincided with those in England. He also desired to emphasize three important points: that active movement was infinitely more valuable than passive; that co-operation should exist between the fracture department and the physiotherapy department; and that progress in the future lay along the lines of working out forms of remedial exercises—for example, in workshops.

SECTION OF OPHTHALMOLOGY

Friday, September 13th

Iridocyclitis

The second day of this Section was devoted to a discussion of iridocyclitis, introduced by Mr. J. H. Doggart (London), who began with a survey of the puzzling problems concerned with its aetiology. Recent researches had thrown doubt on the specificity of tuberculin reactions, even in therapeutics, and on the Wassermann test. Although there was evidence for a dental sepsis origin in some cases this could not be considered as a common occurrence. In males gonococcal iritis was definitely a possibility, even appearing sometimes before the onset of arthritis. Animal experiments had shown that uveitis might result from non-specific protein shock, but there was still no effective therapeutic procedure on this basis. In middle-aged or elderly women there might be recurrent attacks of iridocyclitis without any obvious cause, except possibly the effects produced by debris from involuting sex organs. Apart from the use of heat, mydriatics, and other local remedies, and the elimination of septic foci, salicylates were still generally approved, but Mr. Doggart doubted the value of milk injections in recurrent attacks. The incidence of relapses without apparent reasons further complicated a difficult question. During convalescence from influenza there was a characteristic bilateral iridocyclitis, which responded very well to treatment and did not recur. More emphasis should be attached to the routine clinical examination of the eye, since useful differentiation of the various forms of this disease was more likely to be established thus than by laboratory investigations.

Dr. Leonard Mitchell (Melbourne) said that in Australia tuberculous infection could be held responsible for even fewer cases of the condition than in England, while syphilis in Australia, as in most countries, was decreasing every year. Much rubbish had been written on the subject of dental sepsis as a causative factor, and one could hardly be blamed for holding up to ridicule some of the more preposterous deductions. As a method of protein shock therapy he had been using lately a preparation known as "sulphosin," 1 per cent. sulphur in olive oil, free of fatty acids. The dosage was 1 c.cm. for a trial, followed usually by 2 c.cm., to give rise to a temperature of 104° F. on at least four consecutive occasions; while increases up to 12 c.cm. might be given with safety.

Dr. Adelaide Gault presented a synopsis of twenty-five cases of iridocyclitis seen in the eye department of the Alfred Hospital, Melbourne. Briefly, her conclusions regarding treatment were that, apart from instillation of atropine, tonsillectomy gave the best result; the result of teeth extraction was disappointing. The arsenicals and mercury were not helpful, except in their specific capacity. Sodium salicylate and potassium citrate had been used only as a forlorn hope, and had not really been tried in early cases. It was impossible to come to any conclusion as yet, but the idiopathic cyclitides, and even the gonorrhoeal and possibly the syphilitic cases, did appear to fall into line with the ever-increasing number of allergic phenomena, and investigation along those lines might prove helpful. Dr. J. F. Spring (Melbourne) was interested in the speculation that infection might come from the large bowel. He instanced his own case: he had a large-bowel infection for years, and after trying various drugs found that 15 grains of aspirin taken four times a day for a month controlled the condition. He thought that aspirin acted as a bowel antiseptic. In cases of iridocyclitis in which he could find no cause he had been giving aspirin in large doses, and in some instances he had obtained success.

Dr. J. Lockhart Gibson (Brisbane) said that the Wassermann test had often proved a disadvantage in medicine because of the credence placed on the negative result. He had often proved that the Wassermann test was unreliable. In syphilitic iritis he never used arsenical preparations, but found that the condition could be cured with mercury inunctions. If he were doubtful about syphilis being the cause, he placed the patient on sodium salicylate for a few days and then on mercurial inunction. He did not believe that the term idiopathic cyclitis was justified; he thought the condition was due either to a focal or a constitutional cause. It was important to treat the constitutional cause before looking for a focus.

Mr. N. Bishop Harman (London) stressed the value of potassium iodide in treatment; he gave 15 grains three times a day for a week intermittently, together with large quantities of fluid. The old simple operation of paracentesis was also useful. Dr. Mark Gardner (Melbourne) instanced two cases in which removal of the gall-bladder had resulted in the clearing up of the iridocyclitis, and also one case of sympathetic iridocyclitis which had cleared up with large doses of sodium salicylate. Dr. J. A. O'Brien (Melbourne) said that he had had some experience with the administration of milk as protein shock therapy; he found it useful chiefly in cases of acute iridocyclitis where they seemed to need some fillip to

resolution. Dr. G. A. Brookes (Sydney) had found bowel wash-outs in several cases most effective. After everything else had been done, he had the stomach investigated for streptococci, and if they were found he gave the patient a streptococcal vaccine and administered hydrochloric acid.

Lieut.-Colonel R. E. Wright (Madras) remarked on the great difficulty of proving anything definite bacteriologically in connexion with the eye. It was not known whether an organism was present in the eye or whether a toxin was responsible. It was very doubtful whether malaria gave rise to iridocyclitis. On the other hand, there was a definite clinical association between dysentery and iridocyclitis. He felt that ophthalmologists were being driven back to allergy to account for much of the behaviour of the uvea, and that in allergy there was a most interesting field for investigation of the problems of iridocyclitis.

The President (Dr. A. J. Ballantyne, Glasgow) stressed the fact that there should not be undue pessimism about these cases; although one's treatment had to be empirical, he believed that persistent treatment gave cessation of the disease in the great majority of cases. Tuberculin he used a good deal, not purely on specific grounds: small doses in repeated courses were often helpful.

Squint

Mr. T. a'B. Travers (Melbourne) read a paper on false binocular projection and abnormal retinal correspondence. He defined the latter as an abnormal functional relationship of the two retinae in which the two maculae were not corresponding points: it was in no way comparable with a "false macula" or related to visual acuity. It was the brain's reaction to an abnormal position of the eye, and was more likely to occur if the angle of squint was great and the age of onset early. The longer the deviation persisted the worse was the outlook for a return to normal retinal correspondence. The lesson was thus fairly clear, and with a patient suffering from abnormal correspondence the eye should be got straight as soon as possible if binocular vision was desired. Hence, in Dr. Travers's opinion, these patients should be operated upon as soon as the diagnosis was made.

Dr. G. A. Pockley (Sydney) emphasized the necessity of obtaining the intelligent co-operation of the parents in the treatment of a child with squint. The psychological aspect was often very important. Dr. J. Ringland Anderson (Melbourne) and Dr. Bruce Hamilton (Hobart) said that it was absolutely essential that all cases of squint should be investigated thoroughly with the synoptophore, and that orthoptic training should be carried out if indicated.

SECTION OF PHARMACOLOGY

Friday, September 13th

Premedication

The proceedings on the second day, under the presidency of Dr. Z. Mennell, began with a discussion on premedication, which was introduced by Dr. F. W. Green, anaesthetist to the Royal Melbourne Hospital, whose paper appears this week at page 780.

Dr. W. I. T. Hotten (Sydney) said that for the most part he was in entire agreement with Dr. Green. He maintained that routine use of premedication was undesirable. Definite pathological conditions were often a contraindication to it. For those who feared anaesthetics some type of premedication was necessary; in the majority of cases it sufficed to produce slight sedation. If a patient was calm and restful it was a common occurrence for him to state afterwards that he had no sense of fear. In the condition of thyrotoxicosis deeper sedation was called for. It was better to use small doses of narcotic and to supplement it with inhalation anaesthesia. With gas and oxygen anaesthesia premedication was not only advisable but necessary, with a view to lowering the metabolic rate. With gas and oxygen he gave nembutal, 1½ grains, the night before and the same dose an hour and a half before operation. To robust men he also gave morphine 1/6 grain half an hour before operation. When using ether he relied on nembutal if premedication was deemed advisable. For deep sedation he had relied on paraldehyde in preference to avertin. Paraldehyde did not produce the same degree of narcosis as avertin, nor the same duration of post-operative unconsciousness. On the suggestion of Mr. Poate he had been giving paraldehyde, about 6 drachms in three or four ounces of whey. The mortality rate in a series of thyrotoxic cases which he had investigated was twice as high with avertin narcosis as with paraldehyde.

Dr. D. G. Renton (Melbourne) said that the aims of premedication were: (1) to abolish fear, (2) to augment the effect of the anaesthetic, and (3) to reduce the amount of the anaesthetic. He thought that some of the drugs were more dangerous than the anaesthetic agent. Chloretone he found to be futile for premedication. He had given the barbiturates an extensive trial, first by the intravenous method, then orally. He disagreed with Dr. Green in the matter of dosage; Dr. Green's was too great, except in thyrotoxic cases; small doses produced satisfactory results. Regarding the intravenous use of drugs he was quite in agreement with Dr. Green. Sodium evipan was too dangerous to employ to any extent, but it was sometimes useful. Of the drugs given subcutaneously morphine was the best; he thought they could not do without it, though it did produce vomiting; he had not seen it do any harm or produce depression of respiration sufficient to cause trouble. Hyoscine could not be relied upon; with women patients it worked well, but in men it was uncertain. He did not regard paraldehyde as satisfactory in elderly people. He had abandoned the use of sedatives in children. Experienced nursing sisters had told him that there was more sickness in children following premedication.

Sir William Willcox (London) said that half the trouble with basal anaesthesia was due to advertisements given to medical men, who accepted the statements that they were safe. A number of anaesthetists started with the idea of seeing only the good and not the bad; they should start with the idea that they were giving a toxic drug. He thought that in therapeutics not enough care was taken from a prophylactic point of view. When one gave a basal anaesthetic it was like giving a dose of salvarsan; it was necessary to fortify the liver by means of glucose and alkalis beforehand, and to take care that the patient was not allergic. Patients with a *B. coli* infection were susceptible to toxic drugs generally, and thyrotoxic patients to the barbiturates. Chronic infections such as salpingitis or diverticulitis added greatly to the risk. Patients with low blood pressure were susceptible to basal narcotics. Avertin was a liver poison, but not a powerful one. If there was any evidence of liver defect it was wise to give half the usual dose. Paraldehyde caused haematemesis; it had a toxic action.

Dr. Gilbert Brown (Adelaide) said that the drug should be selected according to the particular patient, the operation, and the view of the operating surgeon. He did not like the intravenous method, except with sodium evipan. Omnopon had less effect in causing vomiting than morphine. He used hyoscine only before gas anaesthesia. After 4 drachms of paraldehyde and 1/6 grain of morphine he had seen deep unconsciousness. Avertin and sodium evipan were the best of the basal narcotics. Dosage of avertin was governed by the patient; he had seen vomiting occur after operation when it was used, generally in the nervous type. He always gave atropine before ether in fairly large doses, but did not give it with gas anaesthesia, as it decreased the effect of the morphine. In his opinion premedication reduced fear and psychic shock and the amount of anaesthetic required. He also said that the barbiturates mitigated the toxic action of the cocaine or novocain.

Dr. E. C. Black (Adelaide) did not agree that a large number of patients required premedication. Children, well handled, did not come to the theatre in a very frightened condition. As to premedication before gas and

oxygen anaesthesia, he thought that one could manage well without it. The after-excitement following the use of nembutal did away with any of its advantages. He saw no use for hyoscine. Dr. F. L. Davies (Melbourne) asked whether premedication was necessary. At present it was largely a matter of fashion fostered by manufacturing chemists. Surgeons were also to blame for telling their patients before the operation that they would go to sleep. The feelings of the patient should not sway the decision. No adventitious drugs should be used unless some indication was present. Morphine came into fashion with the closed method of administering ether, and its use had then been continued with the open method, although it was contraindicated. Dr. Hugh Hunter (Sydney) held that premedication consisted of more than the use of drugs. It was of more importance to see the patient before the operation and to gain his confidence. That had just as much effect as some of the drugs used. Not all patients required sedation. If it was necessary to give some form of premedication only small doses should be given. It was inadvisable to promise patients that they would go to sleep with small doses. It was better to tell them that they would feel calm. Amnesia resulted from small doses, and that was all that was necessary. Premedication did not always lessen the amount of inhalation anaesthesia.

Dr. Z. Mennell (the President) said he had used chloretone and found it a valuable drug; he suggested using it per rectum. Nembutal given by the oral route was uncertain in its action. Its action was more regular when given intravenously. He disliked sodium evipan, but said it was useful in such operations as breaking down joint adhesions. Hyoscine was useful; he used it more than the barbiturates. Ethylene was thought in England to be too dangerous. It was wicked to bring hyperthyroid women into the operating theatre without premedication. To children atropine could be given by the mouth. Morphine had its disadvantages; it caused vomiting. When given intravenously it was more certain in its action. He found that asthmatic patients always took anaesthetics well. The finest treatment for an asthmatic black in the face was a few drops of chloroform.

Gas Anaesthesia under Positive Pressure

Dr. Geoffrey Kaye, honorary anaesthetist to the Alfred Hospital, Melbourne, reviewed the advantages of the positive pressure technique of gas anaesthesia, with references to the use of the McKesson and Austox types of apparatus. His paper appeared in the *Journal* of October 5th.

Professor A. B. P. Amies (Melbourne) said that as far as pressure in gas anaesthesia was concerned, nowhere was it more imperative than in the nasal administration of gas and oxygen. With a complete airtight system and a pressure control intranasal anaesthesia was used fairly extensively for a number of minor operations. The extent of the pressure depended on certain factors: (1) the nasal airway; (2) efficient mouth packing. He used cotton-wool packs rolled to the size of an apple; these were changed every one or two minutes. Many anaesthetists used gas under pressure all the time. A dental surgeon could cause obstruction by over-gagging, even when a pressure of 30 millimetres of mercury was used. Respiratory depression was caused by pressure on the lower jaw with a dental forceps. A factor militating against team work was rough manipulation of the mouth pack, forcing it beyond the anterior pillar of the fauces. The patient was only in a light third stage of anaesthesia. He preferred to have the patient sitting up or in a semi-supine position, the head resting comfortably in a position vertical to the thorax. The presence of blood or mucus interfered with the smoothness of anaesthesia. During the removal and replacement of the pack the pressure was temporarily increased. Females required no premedication for average short dental gas anaesthesia, but he could not be certain of males over 16 years of age. He preferred some form of premedication. He now used intranasal gas anaesthesia as a routine at the Melbourne Dental Hospital.

Spinal Anaesthesia

Mr. Leo Doyle (Melbourne) opened a discussion on spinal anaesthesia in Australia by recalling the stages of development of this procedure and describing the ways in which greater knowledge of its possibilities had been obtained. In addition to securing analgesia of the field of operation, its main advantage was that it provided complete relaxation of the abdominal muscles and blocked all passages of nerve impulses from the operation area to the cerebrum, eliminating any trouble from straining muscles and from bowel intrusion. While the surgeon's work was thus facilitated the immediate and late mortality rates were better than with a general anaesthetic, but the risk of pulmonary complications was no less, except in patients who would be endangered by inhalation narcosis. Spinal anaesthesia was contraindicated in low blood pressure, anaemia, angina, coronary thrombosis, functional and organic nervous diseases, and certain septic conditions. Otherwise it was generally applicable to any operation below the level of the umbilicus, especially if likely to be associated with shock. Hernia, even if strangulated, was better dealt with under spinal anaesthesia, as also were gynaecological conditions, prostatectomy, haemorrhoidectomy, interval appendicectomy, and intestinal obstruction. In this last instance the operation was speeded up most beneficially to the patient, obviating operation sometimes when the obstruction was not mechanical but was due to such a condition as ileus, when the anaesthetic effected reduction of itself. Mr. Doyle confined his use of spinal anaesthesia to operations having their site below the area of supply of the tenth dorsal nerve. Premedication was advisable, for it allayed the fears of the patient; a bromide mixture was given for the two or three days before the operation, some barbiturate on the previous night, and hyoscine and morphine in divided doses about three hours before the beginning of the operation. The spasm of vomiting that occurred some few minutes after the induction of anaesthesia was due to the fall in blood pressure, and was often prevented by premedication. Mr. Doyle thought that some premedication should be given in all cases, but that, if there was any danger of pulmonary complications as the result of a long period of quiet breathing, the dosage should be as small as possible. He described his present method of using novocain. Post-operative complications were rare; headache was curable by placing the patient in the Trendelenburg position for a few hours.

Dr. Gilbert Brown (Adelaide) thought spinal anaesthesia very satisfactory for certain purposes, but not as a routine method. He disliked it for minor operations. Its disadvantages were that the mortality rate was probably slightly higher than with inhalation anaesthesia. This had been lessened with the introduction of ephedrine. It was unsuitable with a highly nervous patient. The blood pressure was likely to fall and reactionary haemorrhage could occur after the blood pressure rose again. Respiratory failure had occurred when the anaesthesia was too high. Headache, paralysis, and failure of anaesthesia had been seen. He considered operations on the lower extremity in the presence of pulmonary disease and when gas anaesthesia was unavailable to be a general indication. More definite indications were operations for the cure of recurrent herniae and prostatectomy. When relaxation was necessary spinal anaesthesia could be used as an adjunct to gas anaesthesia in excision of the rectum. He did not like high spinal anaesthesia, but it was excellent for operations up to the level of the umbilicus. Premedication should not be given in too large a dose. He used the barbiturates in preference to morphine, but not in large doses. A light percaine solution had given him better results than any other drug. Headache and hiccup were complications he had met. Headache could be cured by placing the patient in the Trendelenburg position. It could be eliminated by concentrated rectal injections of magnesium sulphate. Carbogen could relieve hiccup.

Mr. R. F. O'Sullivan (Melbourne) said he had started to use spinal anaesthesia in gynaecological cases after persuasion by Mr. Doyle, and employed it as a routine method unless there were special contraindications. He

obtained greater abdominal relaxation and smoothness of respiration. The patients were a shorter time in hospital, post-operative convalescence was easier, and there was no post-operative shock. In a series of 400 operations with this method he had not seen one case of abdominal distension. There was next to no vomiting, and headache was uncommon. By increasing his doses he had found that the vomiting practically stopped. The average time of anaesthesia he obtained was one hour and twenty-five minutes, but in one case it had lasted for two hours and twenty minutes.

Dr. Z. Mennell (London) said that his experience had dated from 1904. Spinal anaesthesia came second on the list of all anaesthetics in causing pulmonary complications. The first on the list was local anaesthesia. This might have been accounted for by the fact that the patients probably had chest trouble. He had seen most appalling headaches following spinal anaesthesia, for which the best treatment was the Trendelenburg position, large doses of magnesium sulphate, and lumbar puncture. Gynaecologists approved of spinal anaesthesia because they used the Trendelenburg position, and the method should never be employed except when the patient was in this position. It was wonderful for intestinal obstruction. Lately he had used avertin in small doses sufficient to make the patient sleepy as a preliminary to this method. Although avertin lowered the blood pressure it acted well. He had seen a number of surgeons use this method of anaesthesia for prostatectomy and after a year or so give it up.

SECTIONS OF PUBLIC MEDICINE AND MEDICAL SOCIOLOGY

Friday, September 13th

Racial Pressure in the Pacific

A combined meeting of the Sections of Public Medicine and Medical Sociology, with Dr. E. Kaye Le Fleming in the chair, was held to discuss racial pressure problems in Australia and its neighbourhood. The discussion was opened by Sir Raphael W. Cilento, Director-General of Health and Medical Services for Queensland. He suggested three mutually dependent propositions: (1) every previous culture had had its periods of growth, vigour, dominance, arrest, stalemate, disillusionment, decline, and fall; (2) populations always tended to increase up to the limits of available subsistence unless checked by such conditions as war, disease, and deliberate limitation; and (3) in animals, plants, and societies evolution was both progressive and retrogressive constantly, and the specialization to a particular environment which was a notable factor for advancement became a fatal weakness when the environment was changed. Illustrations of the processes involved were taken from ancient and modern times, and from all parts of the world, special attention being devoted to the European and North American civilizations, and to the conditions in Australasia and Japan. From a study of Spengler's cosmic rhythms and rapidly flitting millennia, Sir Raphael proceeded to the discussion of the saturated population of Japan, the possible stalemate of the "moonlight civilization" of Australia, and the uncertain tilt towards decline of the primitive populations of Oceania, emphasizing the mutual interaction of population and subsistence. Japan had extended to the Equator in the south, to the Arctic in the north, and to Manchuria and Mongolia in the west; but she began late, her people were reluctant to emigrate, and her available soil was utilized even beyond its maximum efficiency. The diet of her people was deficient to an uncertain degree, and the nationalistic doctrine had identified reduction of population with national debility. In Australia population had been attracted by gold, and held by wool, wheat, and beef, waxing and waning as the circumstances of the homelands dictated. This population would reach a stalemate at eight and a half millions unless a radical change was effected by circumstances.

Sir James Barrett (Melbourne) referred to the extraordinary position in Hawaii, where Japanese held the majority of votes and where successive importations of various races—Chinese, Japanese, Costa Ricans, Portuguese, and now Filipinos—had been made to supply field labourers, each race in turn migrating into the city. In Fiji the Hindu was thriving. The Native Medical School, backed by the Rockefeller Foundation and the British Government, gave a four-year course for native medical practitioners who returned to their own islands. A white medical service would have a prohibitive cost. The Northern Territory of Australia, while not in any way physiologically impossible to the white race and practically free from tropical disease, was an economic failure. Much hard thought by capable people and the expenditure of seventeen millions of money had resulted in colonization by 4,000 people. The summer rains of the Northern Territory and a long dry winter spell were unfavourable to agriculture. A beast had yet to be invented that was tickproof and manageable to meet pastoral needs. Cattle and sheep failed to breed in the long dry winters. He drew attention to the south coast of Java, with similar soil and climate, which was just as empty, though forty millions of people lived alongside. From the western border of Queensland to the Indian Ocean only 6,500 whites existed. Mortality rates were not low, and irrigation was essential for continuous cultivation. Its only possibilities were pastoral and mineral.

Dr. D. G. Croll (Brisbane) said that Spengler's theory should not be accepted as inevitable; rather should it be critically examined. The first three ages of human existence were: the primal, the stone age, and the agricultural and mechanical age, the last-mentioned covering the 4,000 years ending a century ago, and including all the great cultures mentioned by Spengler. Man was now at the end of the first century of the fourth, or scientific, age, as far ahead of people of 100 years ago as they had been ahead of the ancient Egyptians 4,000 years previously. Spengler's ideas did not forecast the fate of a culture in a new age. The dangers in Australia were real and imminent. To hold Australia with adjacent large populations in Netherlands East Indies and Japan the population had to be increased either by birth rate or by immigration. Drastic steps were essential. Coercion by laws against abortion or against the sale of contraceptives had failed, and would always fail. Improvement in infant and maternal mortality was admirable, but of little effect. Fear was not a material factor—women did not hesitate to run the great risks of abortion. Education might help a little, but the better educated had a lower birth rate. Economics was all-important. The average couple did not desire more than two children; the State would prefer six children or more. The State could obtain the extra four by paying for them—making the economic position of the family of eight as good as that of the family of four. Immigration had its difficulties; Australia ought to have the right kind of immigrant and find him employment. Even if both these things were done, Australia could not compete in numbers. Medical science was the one solution left.

The Rev. John Flynn said that the answer to the question "Does history repeat itself?" was: "Never altogether." The international development of the world should teach man to cease thinking in terms of race or personal geography. The future of Australia could not be entirely settled in Australia by Australians. One could lose many foreign countries in the uninhabited part of Australia. Switzerland, even Great Britain, could be dropped into a single cattle station. Australia was not unlimited: meteorological rainfall boundaries limited it. Foster Fraser's statement that Australians were wonderful people—they could do anything they like except breed—might on the evidence be true. Dr. A. Graham Butler (Canberra) drew attention to Mr. S. M. Bruce's statement that consumption and production must be co-ordinated: production in the past had been stressed; consumption must in future also be studied. The policy of proper quality of the race should in any case be maintained.

Sir Raphael Cilento in reply remarked that similar pessimistic statements to those of Wynne Williams (quoted by Sir James Barrett) were to be found in volumes dating from 1839–67, concerning the impossibility of

colonization of areas like North-Western Victoria, Brisbane, and Maryborough, their premonitions gradually retiring to Western Queensland, till artesian wells were developed. North of Gympie, land had been developed into the premier dairying area of Australia which had been proclaimed unfit for man or beast. The desert complex had occupied too much attention. China had enormous deserts, and also an enormous population. The fringe of Queensland extended for seven to 300 miles from the coast, and in total extent was larger than the arable land in Southern Australia. He deprecated emphasis on the unoccupied third of Australia, but advocated concentration on the larger areas and the greater possibilities.

SECTION OF PUBLIC MEDICINE

Friday, September 13th

Weil's Disease in North Queensland

Dr. T. J. Cotter of the Commonwealth Laboratory, Townsville, in opening a discussion on Weil's disease, reviewed the history of Weil's disease since its first appearance at Ingham, a township of 2,000 inhabitants in North Queensland. He described the symptoms and pathology, and then reviewed the laboratory and field investigations which had definitely incriminated rodents and had revealed the important part played by *Rattus culmorum*, a native species, and the way in which infection entered the poorly shod workers in cane fields. Preventive measures had included a vigorous campaign of rat destruction. There had been no record of case-to-case infection in the Ingham outbreaks. Leptospirae had been cultivated on Fletcher's agar medium, and four human and three rodent strains had been distinguished; virulence had been preserved by passage through guinea-pigs. These strains appeared to be identical, or at any rate closely related, from the serological standpoint. Dr. Cotter thought it possible that pathogenic leptospirae had been introduced by imported rats, and that the native species, possessing no immunity, had become heavily infected. Weil's disease in the sugar-cane area of North Queensland was of serious import from both health and economic aspects. Laboratory research and poisoning campaigns were being actively prosecuted.

Tropical Medicine

The second subject dealt with was tropical medicine, and the opener of the discussion, Dr. G. Carmichael Low (London), surveyed the progress made since the beginning of the present century. His paper appeared last week at page 715.

Dr. C. L. Park (Singapore) followed with an account of the incidence of disease in Eastern countries. He said that the prevalence of what were termed the major infectious diseases—plague, cholera, and small-pox—in Eastern countries, and the lack of exact information about their occurrence, induced the League of Nations in 1925 to establish an Epidemiological Intelligence Bureau in Singapore. This bureau was kept informed by cable of the development and course of such diseases in every country throughout the East, and disseminated information by wireless and cable.

Dr. F. W. P. Cluver (South Africa) recounted experiences in Zululand with the malaria problem. Here anti-larval measures were a failure, but anti-adult measures a success. Two vectors of malaria existed—*Anopheles costalis* and *funestus*. Costalis was responsible for epidemic spread, funestus for endemic occurrence. Costalis bred in puddles, in hoofmarks found round watering places. Draining swamps only exaggerated the difficulty; a ring fence would have been better. Anti-adult measures against costalis were adopted with success. Costalis was a hut frequenter. Weekly sprays with insecticide represented two attacks on the female before she could complete the cycle of infection. A death rate of 10,000 a year from malaria in a million persons was now reduced to very small proportions. In certain areas the native had immunity to the extent of freedom from invalidism, yet new natives from the high veldt all rapidly became malarious. Propaganda was essential, for natives were suspicious, superstitious, and under the influence of the witch-doctor. Quinine was distributed free of cost.

Dr. A. Brennan (New Guinea) said that in the mandated territories of New Guinea the vector bred in clear water and sunlight. In bush country particularly Gambusia fish had been successful. Natives helped in the breeding and distribution into pig-wallows, streams, etc. The spleen rate had dropped from 35 or 40 per cent. to 4 per cent., and the infantile mortality had dropped. Professor Harvey Sutton (Sydney) commented on the need for studying each local problem on its own merits. In Palestine canalization, bank construction, and scrub removal were eminently successful, but in Federated Malay States or in New Guinea would not have been effective. The services of a trained entomologist were indispensable. The Australian medical officers were quite inexperienced in clinical malaria, but, thanks to a special course by Dr. Manson-Bahr, they were trained to watch for and handle malignant tertian malaria, with a resultant saving of thousands of lives when the great epidemic arose after penetration of enemy territory. In the northern part of Australia there occurred sprue, yaws, granuloma pudendae, leprosy, and malaria—diseases which did not come within the experience of the medical student in Sydney, Adelaide, or Melbourne. Hence a course of tropical medicine became an essential for practitioners.

Professor J. Gunn (Melbourne) asked if ports were protected, especially referring to Bombay. Dr. Park replied that anyone might go ashore at any port, but local rules might apply, as at Bombay, which would require that all leaving the port should be vaccinated.

Dr. A. Graham Butler criticized the separation of diseases as tropical. The black death in Europe was plague; England suffered severely from malaria; ankylostomiasis occurred in Cornwall and Mont Cenis. The climatic factor was a dangerous doctrine, and the matter one rather of education and applicability. Amoebic dysentery, for example, occurred in outbreaks in asylums, but did not occur among the intelligent population. Dr. Carmichael Low pointed out that tropical diseases, though their chief intensity was in the Tropics, then spread into the subtropics—for example, malaria in Italy. Hookworm was prevalent in mines and tunnels because of the high humidity and temperature.

MEDICAL PERIODICALS

PROFESSOR BULLOCH'S SCHORSTEIN LECTURE

The Schorstein Memorial Lecture was delivered at the London Hospital on October 17th by Professor William Bulloch, F.R.S., whose subject was "Medical Periodical Literature." He explained his choice of subject by saying that it resulted from a chance conversation with a house-surgeon, who mentioned that he was contemplating writing a paper on injuries of the upper extremity. On being reminded that a great deal had been written already on that subject, the young man made it evident that it had never occurred to him to look up previous references, and he appeared to be almost ignorant of the fact that medical periodical literature existed. Although the output of medical literature was prodigious, very little seemed to have been written about medical periodicals—there were only some 200 references to this subject in the *Index-Catalogue* of the Library of the Surgeon-General's Office, U.S. Army, Washington.

The book of Ecclesiastes declared that of the making of books there was no end. That was written about 200 B.C., but the beginnings of book-making were far older. In the classical period medical literature reached a high standard, as could be seen from the works of Hippocrates, but after the decline of Rome, from the fifth to the tenth century, there descended upon medicine in general an impenetrable gloom. The keynote of the period was the worship of dogma and authority. Gradually, however, the light spread again, from Salerno through Italy, and in the great Renaissance one university after

another was established in the countries bordering the Mediterranean. The revival so far as medicine was concerned was helped by the new spirit of inquiry, the challenge to authority, and the invention of printing. In reciting the rise of the universities Professor Bulloch mentioned that in the sixteenth century Scotland had five universities—St. Andrews, Glasgow, Edinburgh, and two at Aberdeen—this at a time when the whole of England possessed only two.

The Early Journals

The introduction of printing gave a mighty impetus to learning. When the printed book began to make its way the long era of dogmatism and empiricism began to fade. It came to be realized that medicine was a branch of biology. New vistas opened up. Specialisms made their appearance in every branch. The new knowledge at first was presented in the form of books, but by degrees, as the rush of life set in, it was found necessary to distribute new information quickly. Medicine was at first included in the publications dealing with general science. Two publications of this order were of outstanding importance and both dated from 1665. One was published in France, *Le Journal des Sçavans*, and the other in England, the *Philosophical Transactions* of the Royal Society. Similar publications were started a few years later in other countries, especially in Germany, where great activity prevailed in this direction in the later part of the eighteenth and the early part of the nineteenth centuries. Among the medical publications which flourished was the *Archives of Anatomy and Physiology*, edited by Johann Müller, the German physiologist, from 1834. In this country many such publications dated to the early part of the nineteenth century, including the *Edinburgh Medical Journal*, the *Lancet*, and the *Medical Press and Circular*.

During the last seventy years the number of medical periodical publications had shown an amazing tendency to increase. In 1881 John Shaw Billings of the Surgeon-General's Office estimated that there were 180,000 doctors in the world, and that of this number 1,600 were contributors to medical literature. He counted 20,000 original articles in the medical journals of 1879. To-day there were probably more than 400,000 doctors, and the number of contributors had grown in proportion. The *World List of Scientific Periodicals*, published in 1934 by the Oxford University Press, and covering the period 1900–31, contained the names of more than 23,000 such periodicals, and Professor Bulloch estimated that 5,000 of them were medical. Of these periodicals many were indispensable, many were mediocre, and many had no value whatsoever, and could be committed to the flames without loss.

A Vast Output

Some idea of the vast output on various medical subjects could be gained from the Surgeon-General's *Index-Catalogue*. Up to 1893 he counted 7,000 articles and books on syphilis. During the following twenty years, to 1912, there were 14,000 new articles on that subject, and from 1913 to 1932 another 21,000. In the course of twenty years 6,780 articles had been published on heart disease, 7,000 on pregnancy—including 116 on quadruplets!—and between 1913 and 1932 1,280 papers were published on the excision of the tonsils. In 1914 the vitamins were a new subject, but by 1932 1,000 papers had been published about them, and in the same period more than 3,000 articles on cancer of the uterus. As for tuberculosis, between 1893 and 1932, 34,000 articles had been published, 850 per annum—in other words, during the last forty years at least two articles on tuberculosis had been published every day.

Where was this activity going to end? It would mean, as someone had said, that presently the population not actually engaged in writing would be employed in indexing and cataloguing. Dr. Robert Fletcher exclaimed that the whole world was in conspiracy against medical bibliography.

Professor Bulloch caused amusement by reading the titles of some of the periodicals, mostly American, though he added that he did not wish to suggest that there were not first-class professional periodicals in the United States: America had some of the best medical journals in the world. Among the titles he mentioned were the *Alimentary Review* (Jersey City), the *Medical Pickwick* (Saranac Lake, N.Y.), the *Big Four* (by which was meant medicine, pharmacy, toxicology, and therapy), the *Doctor's Factotum*, *Medical Chips*, and the *Plexus*. There were three daily medical papers in the United States. The dental profession was also well provided with 142 dental periodicals, one-third located in America, under such titles as the *Dental Cosmos*, the *Dental Century*, and the *Dental Headlight*.

Libraries

The first great library in this country was the Bodleian, founded in 1598, but the great growth of libraries took place in the eighteenth century. The British Museum was the largest library in the world, with four million books, arranged on sixty miles of shelving, the shelving growing at the rate of a mile a year. The catalogue comprised one thousand volumes. The largest medical library was the Surgeon-General's at Washington, the second largest in Paris, and the third—he was uncertain whether the past or present tense should be employed—the library of the Imperial Medical Academy, Leningrad. In London the Royal Society of Medicine had a library of 150,000 volumes, the Royal College of Surgeons one of 80,000. In the category of libraries of between 60,000 and 30,000 volumes he placed that of the British Medical Association. The biggest medical school library in London was at University College Hospital (28,000 volumes), followed by Middlesex (20,000). The London Hospital had 8,000, and St. Thomas's 7,000. One of the smallest medical libraries was that of the General Medical Council—a collection of 290 books, only available on special permission.

Among catalogues the Surgeon-General's was regarded by the authorities at the British Museum as the greatest ever achieved. It had the great virtue of being a subject index, unlike that of the British Museum, which was a name index only. The story of its construction was not as well known as it ought to be, and one man who had much to do with it was an Englishman, Robert Fletcher, born at Bristol in 1823, and partly trained at the London Hospital. He was associated with Billings, and continued his work on the *Index-Catalogue*, also on the *Index Medicus*, which was started in 1879 and ran until 1899, when it was suspended for a time, publication being resumed in 1903 under the patronage of the Carnegie Institution and Fletcher's editorship. It was now the *Quarterly Cumulative Index Medicus*, published by the American Medical Association. An immense debt of gratitude was owing from the world of medicine to their American colleagues for this work.

How to use Medical Literature

Lest his audience—mainly a young one—should be discouraged by this great volume of production, Professor Bulloch added that notwithstanding all this output there was not a subject in medicine which might not be materially enriched by the humblest student. There were great lacunae in knowledge, and there were medical subjects on which nobody knew anything. Not only so, but there were many affirmations in medical literature which had not been tested and would not bear testing. Medical knowledge was a shifting sand. He begged his hearers in making references to literature to verify them from original sources, for numerous errors crept into quotation. He thought that no one was entitled to quote a statement as coming from an author unless he had taken the trouble to verify it in the original; if the original was unobtainable he should mention the person from whom it was derived at second hand. To those who looked into it closely medical literature contained many curious examples of slipshod work. He instanced a book on peritonitis in the London Hospital library in which the numbers given in the index corresponded not at all to the pages in the text. It was a book of about 100 pages, and the index went to 300. Actually the page numbers of the author's MS. had been

printed instead of the numbers of the printed sheets! Titles should not be too lengthy. Some that he quoted as examples were so long that one wondered whether it was necessary to append the paper. References to authors' names in such a form as "Schmidt of Berlin" were about as useful as a reference to "Jones of Wales." It was also irritating when, in the case of a weekly journal, a reference was given only to the month in which an article appeared, seeing that there were four or five issues in the month. He also protested against the publication of the same paper in several journals. Recently he had sat in a library with six journals in front of him all containing the same paper. Finally the lecturer expressed the view that presently a time would come when there would be demanded a critical review of all medical literature.

HEALTH OF ENGLAND AND WALES

CHIEF MEDICAL OFFICER'S REPORT[1]

Much traffic has flowed along Whitehall during the last sixteen years, and the foundation of the Ministry of Health, which took place on July 1st, 1919, is almost forgotten history. This central authority of comprehensive health services arose out of the new health and economic consciousness of the nation at the end of the war, but it might have been predicted by any student of the social reform of the nineteenth century. Its purpose was to supervise the health of the people as a whole, and to unify and simplify the agencies working to that end. The Ministry was not so much a new creation as a piece of co-ordinating machinery. It took over the health functions of several Government Departments, and it linked together the health services of local authorities and the multiple health bodies of the country. Its medical work is organized in seven divisions—namely, general health and epidemiology; maternity and child welfare; tuberculosis, rheumatic and other general diseases, and institutional provision; nutrition and the supervision of food supplies; general practitioner services and insurance; surveys of health services and public assistance medical services; and the medical work of the Welsh Board of Health. The work of the Ministry is chronicled in its annual reports, and, more intimately from the medical aspect, in the annual reports of its Chief Medical Officer. Some comments were offered last week[2] on the first report to appear above the signature of the second holder of that office in the history of the Ministry, Dr. Arthur MacNalty, but the report contains so much interesting and important detail that no excuse is necessary for returning to it.

Epidemiology

The year 1934 in England and Wales presented few features of epidemiological significance. The incidence of influenza was slight; small-pox ceased for the moment to be a cause of anxiety; the epidemic diseases of the nervous system, including encephalitis lethargica, acute poliomyelitis, and cerebro-spinal fever, showed a slight decline on the previous year, as did the group of intestinal infections—namely, typhoid, paratyphoid, and dysentery. The number of cases of enteric fever was the lowest on record. During the last few years, however, there has been a slight upward trend in the incidence of diphtheria and of the group of streptococcal infections of which scarlet fever and puerperal sepsis are the most important from the administrative point of view. The number of cases of diphtheria notified in 1934 was 68,759, as compared with 47,435 in 1933, and the fatal cases numbered 4,085, giving a fatality rate of 5.9 per cent., as against 5.5 for 1933. The high incidence of 1934 had its beginning in the autumn of 1933; the remissions since then have been much less frequent than in other years of high prevalence, so that there remained throughout the summer of 1934 a large mass of infection. All parts of the country participated in varying degrees in the increased incidence. Figures for the last forty-two years in Manchester are quoted to show that the maximum incidence and mortality of diphtheria falls on the pre-school years, after which, owing to the operation of natural immunization, there is a progressive decline in the number and severity of cases.

Cases of scarlet fever notified in 1934 numbered 152,069, the largest number since 1914, and over 20,000 more than in 1933, which was also an epidemic year. There were 963 deaths, as compared with 729 the previous year, so that there is no evidence that the type of disease is more fatal; but it is pointed out that while scarlet fever at the present time appears to be a mild disease as judged by the low fatality of notified cases, the infections by haemolytic streptococci are often serious, and, indeed, among bacterial causes of disease there is perhaps no greater menace to life and health than these organisms, or the group known as *S. pyogenes*—incidentally the most dangerous infection, and the one most likely to occur in series in puerperal sepsis.

Of the other notifiable infectious diseases pneumonia came next in frequency. In its various forms it was responsible for 28,633 deaths. The mortality from pneumonia is not uniformly distributed throughout the country, but decreases in general from north to south. But the death rate rises with increasing urbanization, and Greater London registers higher rates than any other region for the later periods of life. Among the rarer infections thirteen cases of human anthrax were notified, all among persons whose occupations are usually associated with that disease; three of them proved fatal. Attention is drawn in the report to the severe and fatal form of infective jaundice known as leptospirosis (Weil's disease), ten cases of which among sewer workers in London were described by Hamilton Fairley,[3] while other cases have lately been reported.[4]

Tuberculosis and Venereal Diseases

The death rates for tuberculosis, pulmonary and non-pulmonary alike, were the lowest ever recorded. The number of deaths attributed to tuberculosis of all forms in England and Wales was 30,882, which is only a little higher than the number of deaths from pneumonia. The weather conditions prevailing during 1934 were favourable to a low mortality from respiratory disease, and there was no excessive prevalence of influenza. The number of new cases of tuberculosis added to the notification registers was 64,230, a decline of 2,121 from the number added the previous year. It is remarked that co-operation between tuberculosis officers and general practitioners, as evidenced by the increase in the number of consultations, continues to improve. The use of *x* rays in diagnosis has further extended, and new and improved provision for *x*-ray services is being made by local authorities. There is a short chapter on intestinal tuberculosis. The gloomy prognosis of Hippocrates—that "diarrhoea occurring in a case of consumption is fatal"—is shown by some recent work to hold true only for advanced tuberculous enteritis. When the condition is diagnosed sufficiently early the outlook is much more favourable, as the disease responds to appropriate treatment.

Five years' experience of the Local Government Act, 1929, is discussed in relation to its effects upon the venereal diseases schemes of local authorities. It is considered that the schemes have gained by the change in administration, since it has made local authorities more strictly concerned in such work, and there has been a marked increase of interest on the part of medical officers of health in the efficiency of the treatment centres in their areas. The number of cases of syphilis dealt with for the first time at the centres again created a new low

[1] *On the State of the Public Health.* Annual Report of the Chief Medical Officer of the Ministry of Health for the Year 1934. H.M. Stationery Office. (3s. net.)
[2] October 19th, p. 729.
[3] *British Medical Journal*, 1934, ii, 10.
[4] Ibid., 1934, ii, 1137; 1935, i, 639.

record in 1934 (20,692). There was also a fall in the cases of gonorrhoea, but too slight to be of statistical significance.

The Relation of Food to Health and Disease

The section of the report which is concerned with food is prefaced with some general remarks on nutrition. The rest is a description of the conduct of dietary surveys. The subject of milk is dealt with at length, and it is pointed out once again that cleanliness in milk by no means connotes safety. Milk obtained from a herd infected with tuberculosis or contagious abortion is never safe, no matter how cleanly it may be produced. Cleanliness is, of course, most desirable from the aesthetic and commercial standpoint, but safety is the really important consideration, and in present circumstances the ordinary raw milk supply can never be regarded as safe. To ensure its safety—in other words, its freedom from pathogenic organisms—suitable heat treatment such as is afforded by efficient pasteurization is essential.

Reference is made to the publication in 1934 of the report of the Departmental Committee on the Composition and Description of Food. This country is one of the very few that have hitherto refrained from laying down standards generally for foods, for it has been considered that the interests of the public were efficiently protected by the general provisions of the Food and Drugs (Adulteration) Act as administered by local authorities, and that standardization of foods would be difficult and confer little benefit. At the same time it is admitted that there are cases in which standardization of some kind is desirable—cases in which the consumer is obviously being exploited by the less reputable manufacturer. The framing of a satisfactory schedule of standards is no light matter, and it is necessary above all to beware of being unduly influenced by considerations of commercial or administrative convenience.

Fifty-eight outbreaks of food poisoning and six of bacillary dysentery reported as food poisoning were recorded during the year. Of the fifty-eight there were ten for which no bacteriological explanation could be suggested. The "toxin" type of outbreak accounted for twenty-six cases. The food associated with such outbreaks is usually some form of canned or potted meat or fish, but pickled or pressed beef, tongue or ham, cheese, and milk have all produced similar acute symptoms—that is, abdominal pain, violent vomiting, and diarrhoea followed by rapid recovery. It is added that among these illnesses were included, along with mild bacillary dysentery and toxic types of food poisoning, disorders of digestion due to simple dietetic errors of quantity or quality. Some, perhaps, were cases of gastro-intestinal irritation resulting from exposure and fatigue, which might act on the alimentary canal in the same way as they did to produce catarrhs of the respiratory tract. The possibility of a virus sharing, as in influenza, with the specific bacteria the responsibility for such catarrhs of the stomach and intestine could not be ignored, but experimental proof was attended with at least as great difficulty as in influenza itself. Several recent outbreaks of mild gastro-enteritis, some in institutions, others in ordinary residential districts, as in Malden,[5] had been explicable only on the basis of some such hypothesis, since nothing could be discovered throwing suspicion on food or drink. Much has evidently still to be learned about alimentary pathology.

The Insurance Medical Service

The number of insured persons entitled to medical benefit in England and Wales in 1934 was 15,865,000, a decrease of 206,000 on the figures for the previous year, and the number of insurance practitioners remained the same at 16,500. The cost of medical benefit, exclusive of administration, was just over £9,000,000, of which rather more than three-fourths represents the remuneration of practitioners, and rather less than one-fourth the cost of medicine and appliances. It is noted that the demands on the funds caused by the prescribing of insurance practitioners throughout the country continue to cause anxiety. The average expenditure for drugs per head of the insured population remains at three shillings. A certain increased demand is to be expected from the extending use of costly, though necessary, modern methods of treatment, but it is thought that a considerable proportion of the total outlay in drugs "could be eliminated without detriment (indeed with advantage) to the proper treatment of the people." But in a professional matter of this kind it is understood that the well-directed efforts of representative members and bodies of the profession must prove incalculably more potent than any disciplinary action in individual cases which is open to the Department.

The regional medical service dealt last year with just over half a million references, nearly all of them from approved societies for a decision as to incapacity. During the year the regional medical staff paid close upon 15,000 visits to insurance practitioners in connexion with prescribing, certification of incapacity, and the keeping of medical records. On the matter of records the Department has agreed to the suggestion of the Insurance Acts Committee that while the present system in all essentials should be continued, the profession through its local committees should co-operate with the Department in measures for improving the clinical, as distinct from the administrative or merely statistical, value of the records. Consideration is being given to an appropriate procedure for carrying this into effect.

The Health Services of Local Authorities

Substantial progress is said to have been made in removing the treatment of the sick poor from the Poor Law, but the advantages of appropriation of Poor Law institutions or parts of them for use as public health hospitals are not yet fully realized by all authorities. One of the most important effects of appropriation is that the hospital is made an integral part of the council's health services and comes under the supervision of the medical officer. The position of appropriated hospitals facilitates full co-ordination of hospital work with the council's special services, such as those dealing with maternity and child welfare and tuberculosis. Again, the possession of an appropriated hospital may enable facilities to be provided for women suffering from complications of pregnancy or for young children in need of hospital treatment who have been referred by medical officers engaged in the maternity and child welfare services. Appropriation also renders it easier for the local council to co-operate with the voluntary hospitals in the area.

Medical officers of health are counselled in this report to take frequent opportunities, both in individual intercourse with private practitioners and at meetings of the local profession, to explain the aims and objects of the public health services, to dispel misunderstandings, and to illustrate ways in which the services may be useful to practitioners in the care of their patients. A much more extensive use might be made, it is said, of the consultant services—for example, in obstetrics—provided as an integral part of the local authorities' maternity services.

A list of nineteen counties is given in which arrangements have been made for securing that every medical officer of health subsequently appointed for a district shall be restricted from engaging in private practice. The present number of medical officers of health in these districts who are so restricted is 113, and the number not restricted, 175. The formulation of these arrangements has been delayed in many counties pending a rearrangement of county districts under the Local Government Act. At the end of March last there were in England 1,080 medical officers of health for county districts, of whom 415 were not engaged in private practice. Three years ago the respective numbers were 1,216 and 358, so that the number of appointments held by private practitioners is slowly being reduced. Some time must elapse, however, before the purpose of Section III of the Act is completely fulfilled.

[5] *British Medical Journal*, 1935, i, 583.

Other Activities of the Ministry

The final section of the report amounts almost to a catalogue of the manifold work which the Department undertakes in all kinds of inquiries and enterprises bearing on the public health. A list is given of sixty or more committees and commissions on which members of the medical staff of the Ministry have served. The work of the Ministry's pathological laboratory is the subject of a routine report, as is that of the malaria laboratory. In the matter of port health administration a summary is given of the work carried out in 1934 by the port sanitary authorities in relation to the prevention of the introduction of disease into this country. At the twenty-three "approved" ports the number of vessels which arrived and reported infectious disease on board during the voyage was 989. The number of inspections of vessels for general sanitary purposes was 78,709. Some 28,000 rats were destroyed on ships and a similar number in docks, quays, wharves, and warehouses, but no plague-infected ships arrived during the year, nor was plague infection detected among the rats examined. No case of cholera was introduced, nor were any cases of small-pox landed from vessels, and only eighty-four cases of malaria were landed, although 291 cases were reported to have occurred on vessels but to have been disposed of prior to arrival at the approved port. Lastly, there are the important contacts which the Ministry maintains with international health work, principally through the Health Committee of the League of Nations and the Office International d'Hygiène Publique, and, last year, through the Pan-American Sanitary Conference. Altogether it is an excellent account of the stewardship of a Department which, in the words of the report, "aims at bringing every advance in medical science, every measure calculated to maintain health and to prevent disease to the service of the people, and to make health the birthright of every inhabitant of this country."

England and Wales

Welfare of Cripples and Invalid Children

Forthcoming Conference

Treatment of the after-effects of injury and disease will be the main topic of discussion at the joint conference on the welfare of cripples and invalid children to be held at the Drapers' Hall, Throgmorton Street, E.C.1, on Thursday and Friday, November 7th and 8th, under the auspices of the Invalid Children's Aid Association and the Central Council for the Care of Cripples. The possibilities of immunization and other preventive measures in connexion with infectious diseases will be considered at the first session, when Sir John Broadbent will review the history of researches related to this matter, Surgeon Captain S. F. Dudley will speak on the prophylactic measures against diphtheria in schools and small communities, Dr. J. Alison Glover on the administrative steps taken in scarlet fever, Dr. Matthew Burn on the work of immunization in Birmingham, and Dr. W. J. Pearson on the sequels of measles and whooping-cough. The second session is to be devoted to the problems of physical handicap in modern life, special attention being directed to the part played by local authorities and voluntary associations in fitting the physically handicapped for modern life, and the interchange of facilities for the care of cripples and invalid children between neighbouring areas. Rehabilitation after accidents has been chosen for discussion at the two sessions on the second day. At the first of these Dr. H. C. Cameron and Lieut.-Colonel J. A. A. Pickard (secretary of the National Safety First Association) will review the special problem of the child in connexion with street accidents, Mr. S. A. S. Malkin, F.R.C.S., will outline the possibilities of co-operation between cottage, general, and orthopaedic hospitals in the treatment and after-care of accident cases, Dr. Elizabeth Casson will speak on occupational therapy, and Mr. E. Cecil King on rehabilitation methods generally. The last session will be concerned with such associated questions as the problems of industrial accidents and legislation in connexion with workmen's compensation, and among the speakers will be Dr. D. C. Norris, tutor and lecturer to the Insurance Institute of London. The conference is to be opened with an address by the Minister of Health, and the chairmen of the four sessions will be respectively Lord Snell, Dame Georgiana Buller, Mr. H. S. Souttar, F.R.C.S., and Mr. D. R. Wilson, H.M. Chief Inspector of Factories. Mrs. Stanley Baldwin has consented to hold a reception for delegates at 10, Downing Street on the evening of November 7th. Tickets, price 7s. 6d., admitting to all conference meetings, may be obtained on application to either of the honorary secretaries of the convening bodies at Carnegie House, 117, Piccadilly, W.1. A limited number of complimentary tickets are available for general medical practitioners. Application should be made by postcard to the Invalid Children's Aid Association, at 117, Piccadilly.

Tribute to Dr. D. A. Coles

On his retirement from the chairmanship of the Advisory Medical Committee of the Industrial Welfare Society, and of the Council of Industrial Medicine, Dr. D. A. Coles was entertained at dinner at the Goring Hotel, London, on October 15th. Professor Edgar L. Collis (vice-chairman of the committee) presided, and was supported by a representative attendance of medical officers from various firms connected with the Industrial Welfare Society. During the evening a letter was read from the Duke of York (President of the society), in which His Royal Highness paid a warm tribute to the important work accomplished by Dr. Coles during his many years' association with the society. Numerous messages were received from doctors connected with the Advisory Medical Committee, all of which made reference to Dr. Coles's valuable services on behalf of industrial medicine. In addition, letters expressing appreciation of his labours in promoting international congresses of doctors were received from Dr. C. J. Mijnlieff (International Association for Life Saving and First Aid to the Injured), Dr. Langelez (International Congress for Accidents and Industrial Diseases), and Dr. C. Yersin (Swiss Medical Society for Industrial Accidents and Diseases). Dr. H. H. Kessler of Newark, N.J., cabled "The American members of the International Congress of Industrial Accidents and Diseases learn with regret of the retirement of Dr. D. A. Coles. He leaves a rich legacy of achievement in the field of industrial relations. His statesmanlike influence in international affairs has earned for him the high regard of his professional colleagues and disciples. We wish him a longer life of continued social usefulness." After short speeches by Dr. M. L. Dobbie-Bateman, Dr. E. Burnet, Dr. G. Burnet, Mr. Robert R. Hyde (director of the Industrial Welfare Society), and Dr. T. E. A. Stowell, chief medical officer, Imperial Chemical Industries, Ltd., Dr. Coles expressed on behalf of his wife and himself very sincere thanks and his regret at the absence through indisposition of Sir Thomas Oliver, who had been his official colleague at international congresses in Paris, Bordeaux, Ghent, Amsterdam, Budapest, and in Geneva at the League of Nations. He also congratulated Dr. Stowell on his appointment as chairman of the Advisory Medical Committee and the Council of Industrial Medicine.

Chelsea Clinical Society

The annual dinner of the Chelsea Clinical Society was held at the Rembrandt Hotel, Kensington, on October 15th, with Mr. H. Paxton Baylis presiding. The health of "The Society" was proposed by Field-Marshal Lord Milne, who spoke of personal contacts with the medical profession which he had made as chairman of the Cancer Hospital and also as chairman of a physical training college in the East End. In the latter position he had been impressed by the need for a revived interest in physical education and for stimulating the attention given to this subject by parents. During his active army career he had found a quite lamentable standard of

physique among boys of the "better-off" classes. The chairman, in responding to the toast, said that the Chelsea Clinical Society was founded in 1897 with a membership of seventeen. It had now 230 members, including one founder-member. The meetings were marked by good-fellowship and eager discussion, but the society was perhaps noteworthy in two respects: that it shunned publicity and excluded the "distracting influence of members of the female sex." The toast of "The Guests" was proposed by Dr. Desmond MacManus, who had something happy to say about the names and qualities of each of them. They included Lord Milne, the Earl of Kimberley, Sir John Davidson, Chancellor of the Duchy of Lancaster, Sir Stanley Hewett, Mr. H. L. Eason, Vice-Chancellor of the University of London, and Dr. Bernard Myers, president of the West London Medico-Chirurgical Society. The last two made brief responses. Mr. Eason spoke of the distinction of the medical faculty of the University of London, boldly claiming that it was unparalleled in the British Empire, and that in wealth of clinical material available to students, number and variety of hospitals, and facilities of every kind connected with the study of medicine, London was without compare. It was not perhaps realized that London regularly turned out some 40 per cent. of the new entrants to the medical profession in England and Wales and Scotland. Dr. Bernard Myers gave some impressions of his recent world tour, saying that wherever he had gone in the British Empire he had found the name of the British Medical Association held in high regard and its Branches fulfilling most valuable functions. In New Zealand the Association was looked upon practically as the ethical court of appeal in professional matters, also as a useful advisory body to the Government. He had also found the *British Medical Journal* and the *Lancet* deeply appreciated and read from cover to cover.

Scotland

Royal Medical Society of Edinburgh

The inaugural address of the 199th session of the Royal Medical Society of Edinburgh was delivered on October 18th by Sir Walter Langdon-Brown. Dr. J. L. Henderson, senior president of the society, occupied the chair. The lecturer said that Edinburgh had always recognized the Greek genius, and at the present day it was not inappropriate to remind people of their debt to Greece when so many of its ideals were being challenged. Medicine as a science had been born in Greece, and as the influence of Greece declined so medicine had declined. After outlining the earlier history of medicine, the lecturer took as the main theme of his address "Changing Conceptions of Disease." He said that when he was a student Newton's laws of motion and Dalton's atomic theory would have been regarded as eternal laws of nature, but they were no longer sacrosanct. The laws of nature were merely what our imperfect human intellects could deduce from observed facts, and as methods of observation improved deductions had had to be modified. Human knowledge was gained by truths only half appreciated, by questioning dogmas hitherto accepted, and by recognition of factors that had been overlooked and ceaseless revision of evidence. Some people regarded this process like the swing of a pendulum, but he preferred the analogy of the spiral. At the present day medicine was turning especially to biochemistry and psychology and aiming at a psychosomatic unity. Biochemistry was busying itself with the changes in the cell—with its changing surface tensions and its internal catalysts—so that cellular pathology was now coming back with a difference. Biochemistry had further taught us that a minus might cause a disease as well as a plus, and the conception of deficiency diseases was of far-reaching importance. The recognition of nerve unity had also gradually revolutionized much of neurology. There was a danger in uncritical enthusiasm for one theory of disease, in one-eyed vision, and in finding out what one set out to discover. In this connexion the first act of Bernard Shaw's *The Doctor's Dilemma* came too near the truth to be quite comfortable. The lecturer illustrated this with a reference to the great length to which the current cult of the association between gout and excess of uric acid in the blood was sometimes carried. He had heard a physician state that a man never completely got over the ill effects of eating a beef steak. This physician had once diagnosed a friend who fell into a state of depression as suffering from uric acid toxaemia, and had prescribed a diet of welsh rarebit and macaroni, which was followed by recovery; but he had omitted to take into account the fact that the depression coincided with the friend's rejection by a lady and the recovery with his acceptance by another. In conclusion the lecturer spoke of the invasion of medicine by psychology. The increased awareness of the psychological factor in disease had recently added both to the interest of medical work and to its usefulness. Although this encroached on the province of the Churches there was an enormous amount of mental distress with which the Churches never came into contact that could be alleviated by medicine, for too many people to-day had lost their sense of spiritual values. Without going too deeply into the question of religious dogmas, it was clear that many apparently physical ailments had a psychological origin. The lecturer was accorded a vote of thanks on the motion of Professor Ritchie, seconded by Dr. K. M. Morris.

Glasgow Post-Graduate Courses

The winter session of the Glasgow Post-Graduate Medical Association opens next month. A series of weekly demonstrations for practitioners on Wednesday afternoons will commence at the Royal Hospital for Sick Children on November 6th, when Professor G. B. Fleming will deal with rheumatism in childhood. The demonstrations, which will cover a wide range of subjects, have been arranged on similar lines to those of previous years. The fee for the course is three guineas. Courses have also been arranged at the Glasgow Eye Infirmary for those interested in ophthalmology, and facilities for the study of clinical obstetrics and ante-natal work are offered by the Royal Maternity and Women's Hospital. A practical class on refraction will be conducted by Dr. Janet F. Steel at the Ophthalmic Institution. The staff of the Ear, Nose, and Throat Hospital has arranged demonstrations on ear, nose, and throat affections, and a course in radium therapy is offered at the Glasgow and West of Scotland Radium Institute and at the Glasgow Royal Cancer Hospital. Full particulars can be obtained from the secretary, Post-Graduate Medical Association, the University, Glasgow.

Reports of Societies

"CHANGING SURGERY"

INAUGURAL ADDRESS TO MEDICAL SOCIETY OF LONDON

The first meeting of the session of the Medical Society of London was held on October 21st, when Lord HORDER, the retiring president, inducted his successor, Professor George E. Gask, into the chair. Lord Horder, who had newly arrived in London after his Australian tour, regretted that he could not invest Professor Gask with the presidential jewel, for he had taken the insignia with him to the other side of the world, and had himself returned overland from Naples in advance of his luggage, which was following by sea. He said that there was no one to whom he could more cheerfully commit the destinies of the society than Professor Gask.

Professor GASK devoted his presidential address to a discussion of some of the changes in surgery which had taken place during the last thirty years. Such changes might be dwelt upon as the consolidation of the gains of asepsis over antisepsis, resulting in the evolution of a nearly perfect technique, or the revolution following the application of *x* rays to diagnosis; but the most far-reaching change was the growth of specialism, by which was meant the segregation of patients suffering from like diseases and their treatment by doctors who devoted

themselves to one special line of study. No single date marked the birth of specialism. Until the middle of the nineteenth century physicians and surgeons undertook to teach and practise every branch of their art save midwifery. In 1867 Drs. Andrew and Southey at St. Bartholomew's were appointed demonstrators in dermatology, but there was still no special clinic, and special departments continued in an embryonic way for a number of years. But by the early years of the twentieth century the tide of specialism had swept on resistlessly. Surgery itself began to be divided into numerous branches, so that now there were proctologists, urologists, surgeons for the brain, eye, nose, and ear, as well as radiologists, cardiologists, and gastrologists. Specialism had come to stay.

Effects of Specialism on Surgical Practice

Specialism was the direct and natural outcome of the growth of the natural sciences and their application to medicine. Modern medicine demanded a knowledge of science of which their forefathers were completely ignorant. The mass of information opened out by recent discovery was so large that it was not possible for the ordinary man to master all the facts, and the surgeon, like others, had to resign himself to a limited field. It followed that the practice and outlook of the surgeon had changed. It was no longer possible for the dignified frock-coated surgeon to walk round his wards and make a correct diagnosis with a shrewd glance of his trained eye. The modern surgeon in his white coat had to know a great deal more than his Victorian forerunner. Not only must he have a thorough mastery of surgical technique, but also a sound working knowledge of physics, chemistry, and other sciences. The examination of a case of urinary disease, for example, was a lengthy and complicated process, involving a knowledge of a number of scientific methods. It was not necessary, however, to believe that specialist work must always be segregated from general surgery to the extent which obtained at present. It seemed likely that some of the specialties, as they became better known and their methods were standardized, would gradually be absorbed by, and come back to, general surgery. This was actually occurring at present. Young men were learning to use the cystoscope and the other methods of diagnosis as they learned to drive a car. When they in their turn became senior they would not need a specialist for these purposes. Medical teaching had not given all the help to medical students that it might have done, but important attempts to improve the medical curriculum were now being made, and it was to be hoped that the syllabus of the basic sciences would in future be so framed as to include many of the subjects which were of special interest to medical men, and that the whole of the curriculum would be more harmonized and better designed to meet the growing demands of modern medicine, so that the modern doctor would be better equipped to deal with the multitudinous applications of science.

The Development of the Team

A change of practice which had come about as a result of this rapid increase in scientific knowledge was the development of the team spirit, largely a phenomenon of the war and of post-war surgery, although long before the war there existed a team or group in the Mayo Clinic, under the gifted guidance of the brothers William and Charles. In 1929 their team consisted of 195 physicians with an army of assistants and technicians. The type of work organized so efficiently in the Mayo Clinic was not essentially different from that done in European hospitals, only in these it was done in a minor way and less efficiently. The Mayos were the owners and dictators of their hospital, whereas our hospitals were governed by cumbrous machinery, a legacy of a monastic or conventual ancestry. Professor Gask related one anecdote of the Mayos. A millionaire desired them to visit him. They said that he must come to the Clinic. He wired: "Come at once; money no object." They replied: "Money no object; not coming." Another change which had come about since the war was the formation of medical and surgical units. This was an attempt to graft on to our well-tried and peculiarly English system a means whereby clinical education might be placed on a more scientific basis than had hitherto been possible. The unit system, or something like it, had come to stop.

If one looked at the operation lists of the present day and compared them with those of thirty years ago one found them very different. Surgery had become more preservative and less excisional. The speaker gave a number of examples to illustrate this point. One was that seldom now was it necessary to spend hours dissecting out tuberculous lymphatic glands of the neck. Rational treatment combined with the removal of focal sepsis had rendered this unnecessary. Another instance was the rapid decline of gastrectomy for gastric ulcer in favour of conservative means, although he hastened to add that gastrectomy was still, at times, like amputation, absolutely necessary and most beneficial. In urinary surgery the enlarged prostate still remained a riddle awaiting solution. The mortality from prostatectomy had certainly been reduced, but was still too high. The most intriguing hint came from the work of Professor Kennaway and his team, suggesting that an endocrine secretion might in time furnish a means of avoiding the operation entirely and preserving the gland.

In neuro-surgery there was a strong and growing tendency for the surgeon undertaking operations on the brain and spinal cord to carry out his own examination of the patient and make his own diagnosis. He was no longer content to act the plumber for the physician. This was a healthy tendency. Similar changes were to be seen in the surgery of the chest. The thoracic surgeon was expert in the use of the stethoscope, the bronchoscope, and all the resources of radiology. Was it too much to hope that before very long a unit might be evolved in which the director would have the supervision and direction of both the medical and the surgical sides? It would be a bold and interesting, and he believed a fruitful, experiment.

Touching on radiotherapy, radium in the treatment of cancer had not proved a universal panacea. But although it had not fulfilled the high hopes entertained a few years ago it was likely that it would play an important part in surgery for some time to come. It might be said that radium had supplanted excision for superficial growths of the skin. It was also regarded as the method of choice for the treatment of epithelioma of the tongue and mouth, with the result that the old and terribly mutilating operations about the mouth and jaw were now rarely necessary. Active research in teletherapy with massive doses of radium and high-powered x-ray installations was now proceeding. He also made a reference to experimental surgery. The laboratories of the surgical unit at Edinburgh, under the guidance of Professor Wilkie, had already produced some stimulating work. Again, recently, owing to the generosity of Sir Buckston Browne, the Royal College of Surgeons had become possessed of a research farm at Downe, and here, with Sir Arthur Keith as master and Dr. John Beattie as director of research, active and promising work was going forward. Here indeed was a change of thought and attitude in the Royal College of Surgeons, and an indication of the spirit of the times.

Social and Economic Changes

Professor Gask next turned to the social and economic changes affecting the surgeon and the profession of medicine in general, quoting Sir Walter Fletcher that the two greatest benefactors of English medicine were Henry VIII and Mr. Lloyd George, the former because he abolished the mediaeval monastery and laid the foundation of the modern hospital, and the latter because he gave this country the insurance system. The insurance system, he thought, had proved of substantial benefit to medicine, not least because it had raised the standard of living amongst doctors and thus led to a better class of men coming into the profession. Its defect was the lack of institutional treatment, but this was now being made good under the Local Government Act, 1929, which, though it was a greater revolution than the Insurance

Act itself, had come into operation with wonderful quietness as compared with the storm which ushered in the "panel system." This Act transferred the responsibility for the care of the sick poor from the Poor Law to the municipal authorities. Municipal hospitals well organized and equipped were in being, with a whole-time medical service, which was already creating for itself a fine tradition. Some people were afraid that the voluntary hospitals would be overwhelmed and displaced. Personally he was not afraid of the municipal hospital: he welcomed it, and held that surgeons should assist it in every possible way. If a voluntary hospital fell behind it was its own fault.

The great experiment taking place in Russia, where the State was assuming the entire responsibility for the care of the sick, and private practice had been done away with, should be carefully watched and its effects noted. But it did not follow that Russian methods should be adopted here. A new departure in post-war surgery was the formation of more surgical associations. It would be remembered with gratitude that the British Medical Association had for many years fostered the idea of intercommunication between members of the profession in their different Branches, and the Surgical Section at its annual meetings had been a great advantage. The need was felt, however, for still more meetings, and so it came about that the Association of Surgeons of Great Britain and Ireland was founded in 1920. The development of a number of surgical travelling clubs had also to be noted; these were small groups of surgeons who made a practice of travelling each year to visit some foreign clinic. Surgery was international, and the international feeling had been expressed by a communication addressed by the Société Nationale de Chirurgie of Paris to the Royal College of Surgeons asking that closer relations be entered into between the two bodies; to this the College was responding in a cordial manner. He would be a wise man, said Professor Gask in conclusion, who could foretell the future of surgery. There was evidence of an increasing demand for the better organization of surgery and the development of the collective or team spirit. The disadvantage under which detached workers laboured was obvious.

SCHOOLS OF PSYCHOLOGY

At the opening of the session of the Medical Society of Individual Psychology on October 10th, Dr. Bevan Brown delivered an address from the chair entitled "Psychological Schools: a Plea for Correlation."

He referred to the existing tendency towards competition and antipathy between the schools, and to the unfortunate effects of such controversy upon the progress of psychological medicine as a whole and upon its extension and wider dissemination among the medical profession generally. He pointed out that criticism was often made by medical men as follows: "When you agree among yourselves we will attend to you, but not before"; and considered that there was much justification for such an attitude in the existing state of the schools. He mentioned the frequency with which it was stated both by members of the schools and by outsiders that the schools were irreconcilable and that co-ordination was hopeless. He disagreed emphatically with such statements: a measure of correlation and a common basis was discoverable if one really sought to find it. He contended that the promoters and devotees of the particular schools did not in general seek for agreement or correlation, but actually sought to emphasize the differences: that if one ignored the matter of emphasis which was often arbitrary and took into consideration the fact that ideas of such an abstract kind could be expressed in various forms and widely different language, the ideas themselves could ultimately appear as not so dissimilar.

Dr. Bevan Brown's main theme was that some co-ordination was greatly to be desired in the interests of the further extension of knowledge of the subject in the profession; he supported his plea for correlation by arguments disproving the statement that no correlation was possible. To this end he entered upon a preliminary investigation of the main doctrines of Freud and Adler and argued that underneath the two sets of verbiage and formulations, and discounting arbitrary emphasis, there was common ground to be found. It was not necessary, and was in fact unjustifiable, to assume that any one school was complete or exhaustive and therefore correlation in a precise sense was not to be expected: each school contained contributions to the whole problem not possessed by the others, and therefore complementation should be considered as well as correlation. He laid great stress on the view that as far as therapeutics was concerned it was fallacious to argue the question in terms of the various psychopathological theories only; because the subjective factors in the physician played a very important part in the matter, and probably a much more important part than the particular theories he held, and the cures he obtained were in many cases quite independent of the theories. He exhorted the society to give due weight to all views, and to abhor sectarianism and bigotry.

Sir Walter Langdon-Brown, seconded by Dr. O. H. Woodcock, proposed a vote of thanks to Dr. Bevan Brown, both complimenting him on the courage and originality with which he had approached a difficult problem.

CORRESPONDENCE

The Art and Science of Medicine

Sir,—During the last fortnight I have read and read again Mr. Wilfred Trotter's Lloyd Roberts Lecture and I share to the full the admiration expressed in your annotation; but admiration does not necessarily connote complete agreement, and we must be careful not to be bemused by the charm of his prose into accepting conclusions which if draped less elegantly we might criticize adversely.

Dissecting medicine into three component parts—a practical art, an applied science, and an experimental science (clinical science)—Mr. Trotter gives us a lucid analysis of each and the methods appropriate to them. Exceedingly helpful as this dissection is in helping us to a clear view of a complex subject, it would surely be disastrous if we allowed any rigid separation to develop between them either in our educational methods or in our daily practice: yet this seems the inevitable course upon which this lecture drives us. It is perfectly true that the man who is engaged mainly in the practical art is faced with innumerable problems to which he cannot hope to bring the severe standard of proof demanded by the clinical scientist who is in the fortunate position of being able to choose his own problems: but he can make accurate observations, arrange them in an orderly manner, and make logical deductions from them. This is the essence of the scientific method, and the fact that the data are insufficient for a complete solution of the problem (provided that that fact is recognized) does not make the investigation unscientific and need not hamper a conclusion that is finally reached on probability based on experience. Is not Mr. Trotter's "cultured judgement" really the result of scientific thinking tempered by common sense? That scientific thought is not incompatible with the practical art is proved beyond dispute by the superscription to the lecture; "F.R.S. and Sergeant Surgeon to the King" is proof enough of a lifetime of scientific thinking and of a very tolerable success in the practical art; and I view with dismay a scheme of medicine which would deprive posterity of those who would try to follow in Mr. Trotter's footsteps.

Turning to the other side of the picture, I do not believe that clinical science can possibly achieve its full mission, or even survive, if it be divorced from the practical art of clinical medicine, for it is only from the latter that the science can derive its inspiration. Clinical

science is not a product of the twentieth century ; it is the reanimation of the methods of our forefathers, who found their problems in the wards and worked them out there and in so doing established pathology. Pathology in those days was a " topical " science ; Mr. Trotter classes it now amongst the general sciences, and it is in fact widely accepted as a science deserving study for its own sake independently of any connexion with clinical medicine. It is just this shift of pathology from medicine that has necessitated the emphasis now rightly laid on clinical science.

My differences with Mr. Trotter are crystallized in his final paragraph, wherein he attempts to establish the inadequacy of the practical art of the nineteenth century for the discovery of new truth, taking for his illustration the story of scurvy and rickets. Why Mr. Trotter should seek his authority on the " English disease " in the opinion of a Frenchman quoted without much conviction by a Scottish physiologist in a fifteen-line article in the *Encyclopaedia Britannica* of 1911 I cannot imagine. The careful review in Allbutt and Rolleston's *System* of 1908 by those practical artists Cheadle and Poynton gives a very different impression, and no one would imagine from his drawing that in the first edition of Goodhart's *Diseases of Children*, published in 1882, as in the last in 1913, rickets was described as a " diet disease," and cod-liver oil was accepted then, as now, as the most efficient remedy. Does Mr. Trotter really maintain that there was no " active clinical science " in the century that spanned the lives of Bright, Lister, and Hughlings Jackson? It is because of its proved achievement in the past that some of us are enthusiastic advocates of the continued and increased endowment of clinical science in the future. —I am, etc.,

London, S.W.5, Oct. 19th. G. W. Goodhart.

Injection Treatment of Varicose Veins

Sir,—The criticism which our paper (*Journal*, July 13th) received has been very gratifying, and it has brought out some further useful points. It is interesting to hear from Dr. C. J. Cellan-Jones that the quinine-urethane results conform fairly closely with those given by salicylate-saline, and especially that very few true instances of recanalization have been noticed. This he attributes to the intensity of the intimal reaction with quinine. If this is the reason the stiction effect ought frequently to be seen, but until we have the actual figures for the various methods, given with some kind of classification, we cannot be sure. If, as he states, large varices sclerose with small paravenous injections, the only remaining indication for ligation has been removed. The method could obviously also be used for the remaining " perforating " varicosities, and operations of any kind for varicosity will then be unnecessary.

Dr. Stuart McAusland refers to the difficulty arising from the many diverse factors in each case, and reminds us that Professor Sicard used to advise the administration of thyroid extract. We have had no definite cases of ordinary varicosity in hypo-endocrists (not that they are a cult), but many with malnutrition, and these we have partially alleviated. We saw many hypo-patients without varicosity. It is so natural and so important to reduce the caustic strength of the solution in cases of thin-walled veins that we forgot to mention it! In the earlier cases inches of vein would necrose subcutaneously, or periphlebitis would ensue, until this point was recognized. To-day the danger lies more in a backward escape of some of the solution when the needle is withdrawn, as Dr. McAusland points out. Whether the extra tonus produced by some of the endocrine preparations now obtainable will be sufficient to prevent this we do not know, but most of them seem to be adapted to do most things. The general relief of hypotonicity is a step towards the prevention of varicosity.

Dr. McAusland has not quite gathered my own point from a previous paper about the pain caused by salicylate. It is utilized to show, and if required to modify, the course and directions of spread of the solution *at the time the injection is made*. In this way a high degree of efficiency can be attained and many injections avoided. The pain is cramp-like, but is not accompanied by muscular contraction. It is quite bearable, but sufficiently severe to deter general practitioners from using salicylate as a routine. One can predict the area of thrombosis likely to be caused by the first two or three injections in any one limb, but in general this is the limit of actual guidability once the main channels are occluded. At the second and subsequent visits the predicted results can be confirmed, and, if the extent of the pain has been noted, one may have valuable facts for future reference. This is especially the case if the thrombosis does *not* correspond with the prediction. Later, when some form of recurrence is seen, the question arises as to the tributary area from which it has come. If the previous facts are as stated there is probably a large, deep communicating channel in that area. The slow continuance of thrombosis may mislead us unless the pain was noted at the time. When the main channels have been stopped the pain spreads in the most unexpected and anomalous manner. When painless solutions are used the matter is largely reduced to guesswork, and the posturing and milking processes may be erroneously performed. Unless it happens that a change in colour or some veni-spasm shows the way there is no means of judging when to use them, in which direction to use them, or at what rate to effect the changes in posture so as to flood the different areas and to keep them full of solution for as long a time as possible. But these methods are not necessary in slight cases or in those partially cured. Painless solutions then take their own course and give excellent results.

Mr. Maingot very kindly demonstrated the twin injection method to me when our clinic first opened. We did not ever practise it because we obtained good results by the single injection method. If one tries the twin injection in a glass tube the precipitate of quinine salicylate dissolves slowly at each end. For how long it stops the flow of blood in any segment of vein depends no doubt on the agitation at each end of the precipitate, on its size and density, and on the size of the vein. The sclerosing solutions are meanwhile being diluted at the ends and their properties mutually neutralized centrally. The stoppage, too, can be imitated by pressure. So many additional factors make it difficult to assess the actual value of the method, and this was our chief reason for not employing it.

The crux of the controversy about elastoplast, Unna's stocking, and non-elastic paste bandages, such as viscopaste, seems to be this. Elastoplast goes on contracting and squeezing out the oedema from the limb, while at the same time it slides a little from its first position, taking the epidermis of an irritable skin with it apparently in about a quarter of the cases. With the Unna stocking or paste bandages the liquid oedema is out of the limb, or should be, before the application is made. No contraction is necessary, and expansion is prevented when the limb becomes vertical with the foot down. Whether elastoplast would form as good and as soothing a dressing or a better one were the oedema first reduced by elevation of the limb has not yet been proved so far as we know. Acute or subacute dermatitis under a casing must be a very trying thing to endure. In thirty years' constant experience of the Unna method I have never

seen it occur, except near an ulcer. My own facilities for treating a large number of cases no longer exist, but it should not be difficult for independent observers to collect a few patients who show much the same conditions of oedema and eczema of both legs, and compare the elastoplast with the Unna or visco-paste casing on the two legs of each patient simultaneously. We did not adopt the method of the Drs. Cellan-Jones, though it was so well conceived and carried out, because our nurses were already obtaining perfect results by the Unna stocking. All such applications have to be supervised because staffs change, and unless nurses are shown the way they are apt to apply the casing or bandages with the limb horizontal instead of highly elevated. When wrongly done a non-elastic application becomes loose during recumbency, and the effects of constant compression and pressure atrophy are not produced. Which method is the less messy depends on the user, and no doubt each would offer an incentive to Charlie Chaplin.

Apart from an occasional naevus in a patient with varicosity we have had no patient treated by radium. The radium service was always fully occupied in dealing with malignant disease. When it is possible to reduce the cost of it and to provide service in quantity for common ailments the mass results should be excellent provided that no injections have been given. If, as so often happens, the surgeon tries his methods first, the radium expert may not be able to control the conditions of fibrosis so engendered.—I am, etc.,

London, W.1, Oct. 12th. G. H. Colt.

Precautions in an Immunization Clinic

Sir,—Several medical men have pointed out that, when working in a busy diphtheria immunization clinic with Schick toxin and control fluid, and possibly two different kinds of prophylactic on one small table, there is a material risk of confusing the injections to be given. May I mention a laboratory "tip" we have found useful when using more than one solution—for example, "Schick" or "Dick" toxin and control, tuberculin, etc. We obtained very small cheap rubber collars of different colours. I understand that John Bell and Croyden (50, Wigmore Street, W.1) have these bands. These are readily put on the barrel of the syringe and retain distinctive colours through many boilings. A convenient convention is: red rubber band for Schick toxin, blue for Schick control fluid, purple for T.A.F., green for F.T., and yellow for T.A.M. The thick white suspension of alum toxoid needs no identification band.—I am, etc.,

Beckenham, Oct. 19th. R. A. O'Brien.

Diphtheria: Two Questions

Sir,—Dr. R. T. Bowden's letter (*Journal*, October 12th, p. 701) is timely, for the profession's immunizing ardour is attracting the attention of all people; and the questionings, not only of intelligent laymen, but of (let me hope this will be allowed) the not unintelligent members of our profession require to be "answered" with more satisfaction than is conveyed by your annotation in the *Journal* of October 12th (p. 673).

Naturally, I can speak for myself only. I am not satisfied that your annotation answers Dr. Bowden's questions. The introduction of cost statistics is misleading, first of all because of "it is estimated," and next because the figure relates to one, now distant, year—1921. To be of real value we ought to have the actual average cost for, say, the past ten years. And even then we should not reach the truth, for epidemics vary in size and severity, and incorrect diagnosis of diphtheria (when no such condition is present) accounts for not a small proportion of the cost at "about £30" per case.

It is my practice every now and then to send up for bacteriological examination swabs from throats looking typical of diphtheria, and it is years since a "positive" has been diagnosed. All my patients have recovered. It must here be said that though I, in active practice, have had no diphtheria, many cases have been so diagnosed and sent into the fever hospitals, there to increase the weight of the financial argument of which you make so much. I have no recent figures; but in the first twenty or so years of this century there used to be admitted to the M.A.B. hospitals well over 3,000 wrongly diagnosed cases. Allot 1,000 of these to diphtheria, and you have (at £30) a nice round sum which ought not to have figured in the statistics you quote.

When we come to the subject of prophylaxis I think your annotation errs by omission. It ought to have been frankly admitted that not less than 10 per cent. of trebly "immunized" persons remain positive. Others besides medical people read the *Journal*, and I, in common with other doctors, am faced with the questions of intelligent laymen about such figures and statements. How can I say the words "immunity" and "immunizing" are correctly used? How recommend the immunizing of little children who might remain "positive" after three assaults with some toxoid or other, or who, if left alone, might pass unscathed through a dozen epidemics of diphtheria? For it ought to be shown in such a manner that no questionings can arise after the showing that *on the average* far more than 10 per cent. of "unimmunized" people under modern sanitary conditions are likely to be attacked by the disease during an epidemic. And ought it not to be made clear that if an "unimmunized" child dies of the disease that particular child's was *not* a case which would have terminated fatally in any event?

I have not the hardihood to claim that my treatment, and mine alone, in any disease is the only right treatment. This is one of those cases in which the end justifies the means, provided always that "end" and "favourable outcome" are convertible terms. Lastly, I would have it made clear that there is no guarantee of lasting immunity after any number of toxoid injections.—I am, etc.,

Acton, W.3, Oct. 13th. A. R. Eates.

*** We think our annotation did answer Dr. Bowden's questions. Those put by Dr. Eates are not quite the same. We have no desire to overemphasize the financial aspect of the diphtheria problem, because we think the loss of life and the disability arising from this disease are far more important. Dr. Eates will notice, however, that the estimate quoted in our annotation implies that over three million children could have been immunized for the cost of treating diphtheria in hospital in London in 1921. If we assume that in an average year the cost of treatment would have been half as much (certainly an underestimate), and that only half of these were properly diagnosed (again a gross underestimate), then London must spend annually a greater amount on the treatment of true cases of diphtheria than would serve to immunize for a term of years about 800,000 children, or nearly half the children under 15 years of age in Greater London. We know that communal immunity could be reached by immunizing a far smaller number than this. It is true that a small percentage of children are difficult to immunize, but immunity can nearly always be attained by supplementary doses of toxoid. Ten per cent. do *not* remain Schick-positive if the prophylaxis is properly carried out. Parents can be given a large measure of assurance if a positive Schick test is done and the treatment carried to the negative state.—Ed., *B.M.J.*

Treatment of Telangiectasis

Sir,—In your issue of September 28th Dr. N. S. Finzi has written an inspiring article on the radium treatment of naevi. He states that excessive exposure to sunlight or ultra-violet rays aggravates scarring and telangiectasis. I have never seen telangiectasis result from exposure to ultra-violet rays, and I should be interested to hear the experience of others.

The area of skin exposed to radium and *x* rays is frequently very sensitive to light, rapid flushing is observed, and symptoms of intensive irritation are common, so much so that these patients instinctively avoid exposure to sunlight. This, however, is due to abnormal sensitivity to heat (infra-red) and luminous rays, and may be due to damage to the nervous control of the cutaneous circulation and lack of pigmentation. A simple proof may be demonstrated by exposure of the telangiectatic skin (which has been exposed to radium, etc.) to a tungsten filament lamp or similar light source, in which the erythema-producing ultra-violet rays of wave-length shorter than 3,000 A.U have been filtered: a diffuse erythema rapidly appears, with itching and other irritative symptoms. The exposure of such skin to erythema doses of ultra-violet rays by means of a cold source—that is, a water-cooled mercury-vapour lamp—diminishes this sensitiveness to heat and luminous rays, and also heals telangiectasis and improves the cosmetic appearance. I have successfully treated telangiectatic skin by this method. The healing scar tissue following the local application of the rays of a mercury-vapour lamp to chronic ulcers and septic wounds, such as lupus lesions, varicose ulcers, and ulcers following radium necrosis, even when fifteen to twenty erythema doses are applied, never show telangiectasis. A uniform pale and supple scar is seen. Intensive treatment by ultra-violet rays is helpful in the treatment of port-wine marks ; it gradually makes the lesion paler, and gives an improved cosmetic result.—I am, etc.,

London, W.1, Oct. 21st. Albert Eidinow.

Views on the Cancer Problem

Sir,—It is with great reluctance that I take any notice of Dr. Annett's indefensible letter in the *Journal* of October 19th ; but since more important matters than Dr. Annett's manners and methods are at stake I must do so.

In the first place I cannot believe that any intelligent person will agree with Dr. Annett's opprobrious description of my perfectly fair and polite rejoinder to his dogmatic attack on my views concerning the nature of cancer.

Secondly, with regard to the paragraph extracted by Dr. Annett from a most inaccurate letter (*Lancet*, 1925) to which I incidentally and considerately referred, I must now point out that in my unchallenged reply it was quite definitely shown that it was my critic, Dr. J. A. Murray, not I, who had neglected to study the literature—a fact that seems to be at variance with a remark made in the last paragraph of Dr. Annett's letter. I may add that this reply was written with the close co-operation of the late Professor Adami, the distinguished pathologist, who had reason to be interested in Beard's theory, which he rejected.

In regard to the final assertions in Dr. Annett's last letter I may say that for many years I have endeavoured to keep abreast of embryological investigations and advances, especially, but not solely, those which might throw light on the cancer problem. Naturally one's reading must be selective, and for the most part general ; so, although my arguments will not necessarily be affected, as I have already indicated, I shall be obliged if Dr. Annett will give references to the papers which, if his statement is accurate, I must have missed, and which, he would have us believe, " completely demonstrated " (this excludes theories, and implies proof and acceptance) that the trophoblastic parent cell is separated from what may be called the somatic moiety as " the first product of segmentation of the fertilized ovum "—that is, the two-cell stage—in placental mammals. He declares that the papers are too numerous to mention ; but half a dozen recent and authoritative references will be enough. Dr. Annett will surely have these at hand ; so, while I regret overlooking them, I trust he will be put to no trouble. I hope, however, that Dr. Annett will appreciate the necessity of sticking to the one point, which I have just mentioned in his own words, for I detect in his last letter a tendency to hedge when he writes of the literature of " the early developmental stages of the fertilized ovum." I cannot allow an extension of the subject to multicellular phases with which I am not unfamiliar but am at the moment unconcerned.

It will be noted that I have been careful to ensure that my request shall be definite and limited to one specific statement made by Dr. Annett ; consequently it permits an unequivocal reply.—I am, etc.,

Eardiston, Oct. 21st. W. Blair-Bell.

Cardiac Resuscitation

Sir,—In reply to Dr. A. Goodman Levy's letter in to-day's *Journal*, I might state that I unfortunately did not *emphasize* the fact that cardiac massage, carried out as I described, effects a remarkable amount of artificial respiration, rendering the special need for the latter quite unnecessary. I therefore cannot agree with him in attributing failures to lack of artificial respiration carried out as he suggests. On referring to my paper again, I find that it includes all the conditions required by Dr. Levy for success, and I would refer him once more to the second last paragraph in which the causes of failure mentioned have been met with in actual experience, and were quite uninfluenced by artificial respiration with oxygen, both before and during the massage.—I am, etc.,

Glasgow, Oct. 19th. W. B. Primrose.

Chloroform Anaesthesia

Sir,—In the course of the recent correspondence on the subject of cardiac resuscitation Dr. Vincent Norman and Dr. W. B. Primrose have raised the question of the use of chloroform in Scotland.

In my presidential address to the Scottish Society of Anaesthetists in 1925 I discussed the position of chloroform as an anaesthetic agent (*Lancet*, June 12th, 1926), and I did so chiefly with reference to the teaching of anaesthetics, and to the use of this drug by the general practitioner who desires to administer an anaesthetic when the necessity arises in his own practice. I deprecated its use in cases of grave debility with low blood pressure and in cases likely to develop acidosis, and I condemned absolutely its use as a routine method of inducing full surgical anaesthesia. In support of my views as to its dangers during the induction period I referred to the work of Levy and MacWilliam. They had established convincing evidence that these sudden chloroform deaths are due to ventricular fibrillation. I pointed out that clinically it was impossible to tell beforehand whether a patient's heart would become susceptible to ventricular fibrillation or not, and that the onset of this fatal condition could not be avoided by the most expert administrator. I maintained that there were no " principles of the safe

administration of chloroform," and that it was quite impossible to render safe the administration of this drug for the induction of full surgical anaesthesia. I further stated that the use of the expression " death due to light chloroform anaesthesia " was unjustifiable, and conveyed the wholly false and dangerous doctrine that safety would have been found in giving more chloroform.

Ian G. W. Hill (*Edinburgh Medical Journal*, September, 1932) has made an electrocardiographic study of the human heart in anaesthesia, and his results confirm in a convincing way the fact that chloroform syncope is due to the sudden onset of ventricular fibrillation. Hill has demonstrated in the human subject similar gross disturbances of cardiac action in eight of sixteen cases in which chloroform was used for induction. In no case, fortunately, was there a fatal onset of ventricular fibrillation, and on this subject he reports:

" We are still fortunately without the certain evidence regarding ventricular fibrillation, but the multiple ventricular irregularities observed so commonly in the present series seem to supply a link in the chain of evidence supporting Levy's view. These irregularities developed early in the course of anaesthesia, usually *towards the close of the induction period*. Their onset bore a definite relation in some cases to struggling on the part of the patient ; they were not due to overdosage, but disappeared as the dosage was increased and the full third stage of anaesthesia reached."

In twenty-five cases of general anaesthesia when chloroform was not used, these gross disturbances of cardiac action were not observed, and they were definitely peculiar to early chloroform anaesthesia. I do not think there is room to doubt that, as Hill suggests, these disturbances correspond to the pre-fibrillation phase observed by other workers under light chloroform anaesthesia in the cat.

These results, indeed, fit in accurately with our clinical experience. " Chloroform syncope " occurs during the induction period, when the patient is passing from the second stage into that of full surgical anaesthesia. This fact I endeavoured to demonstrate in my analysis of mortality statistics submitted in my address of 1925, and I believe it is generally accepted by experienced administrators. Levy speaks of " light chloroform anaesthesia," which is much too vague a term to be of use, but Hill has fortunately been able to determine more accurately the dangerous period. One would welcome still more definite information on this point. Are these multiple ventricular irregularities ever apparent in the first and the early second stage of anaesthesia? I believe not. After an experience now of many thousands of cases I am of opinion that the administration of chloroform in gradually increasing dosage up to the second stage of anaesthesia entails no risk of chloroform syncope. I am also of opinion that the administration of chloroform beyond this stage is associated with a real and unavoidable risk of chloroform syncope. My teaching of students has, since 1917, been based upon these opinions. Chloroform may be administered in a dilute, and gradually but definitely strengthened vapour up to the second stage—the stage of loss of consciousness. A change must then be made to ether mask and full anaesthesia induced with ether alone. I have never observed any alarming occurrence associated with this procedure, and have not observed a case of cardiac arrest during the past eighteen years.

As a method of producing *analgesia* during the pains of labour, I have used chloroform for many years, and have found it to be absolutely safe. I have also used gas and oxygen, but in my hands it is not so satisfactory as chloroform. It is always a difficult matter to compare two methods of anaesthesia as used by two different administrators. The manner of giving the anaesthetic may be vastly more important than the particular anaesthetic agent used. The administration of chloroform to allay the pains of labour requires skill and experience if the best results are to be obtained, and the best results are superior to anything I have seen obtained by other methods. Women in labour behave so differently it is impossible to lay down rules even as regards the use of the mask and capsule, and I cannot believe that anything like the best results will be obtained by Rivett's mask and capsule in the hands of a midwife. I cannot even regard it under these conditions as being a safe procedure.

A good many years ago a practitioner boasted to me that he could put a patient under " with a teaspoonful of chloroform." He accomplished this feat by covering the mask and patient's face with a piece of waterproof sheeting in which he had cut a small hole. He dropped the chloroform upon the fabric of the mask through this hole. A " clever " midwife might easily and innocently devise a similar method to " make the capsule go further." How many midwives will realize that, as regards anaesthesia, dosage is not amount of chloroform used, but strength of vapour inhaled? Could the capsule and mask method be depended upon to be carried out exactly as recommended by Mr. Rivett I feel sure, on the other hand, that though the results might not be satisfactory it would be perfectly safe.

With the exception of cases of labour, chloroform now has a very small place in my own anaesthetic practice. I do not use it even in cases of labour if full anaesthesia is required for an obstetrical operation. Needless to say, I never under any circumstances induce full anaesthesia with chloroform, and only use it to maintain anaesthesia when the surgeon is using diathermy in, or in close proximity to, the mouth or nose. I do not find chloroform necessary or advisable as an addition to gas and oxygen or ether vapour anaesthesia.—I am, etc.,

Dundee, Oct. 16th. ARTHUR MILLS.

Post-Anaesthetic Conjunctivitis

SIR,—Dr. L. Clarke in his letter to the *Journal* of October 19th laments that so little attention has been paid to this condition in medical literature. As a matter of fact I have referred to this point in several papers during the last twenty-five years, pointing out what may be considered the commonest cause of post-anaesthetic conjunctivitis and the infallible means of preventing it. As atropine has been administered previous to the operation the conjunctivae are dry and ether vapour is likely to irritate them, both of which circumstances are likely to lead to conjunctivitis unless a lubricant is used. Therefore in every case a few drops of castor oil should be dropped into the eyes before the patient is removed from the table. This should not be done until after the anaesthetic has ceased, as otherwise the oil combines with the ether vapour to form an oily ethereal solution which in itself will cause conjunctivitis.—I am, etc.,

HAROLD SINGTON, M.D., D.A.

London, W.2, Oct. 19th.

SIR,—I was very much interested in Dr. L. T. Clarke's remarks on post-anaesthetic conjunctivitis in your issue of October 19th (p. 762). He quite rightly states that in many cases the eyelids are separated during anaesthesia, but he does not mention the fact that the gamgee tissue which is commonly used as a face-piece very often rubs against an unprotected cornea. That, I think, is the real cause of post-anaesthetic conjunctivitis, and every student who comes to me has this point made quite clear to him.

I never use the eye at all in obtaining signs of anaesthesia. First, because it is of very little value when

using basal anaesthetics, and, secondly, because I think it is criminal to expose so delicate an organ to outside irritation such as bright theatre lights or anaesthetic vapours. I consider all my cases to be blind, and in that case there is no eye to examine. I do not like to think that "taking the corneal reflex" is a cause of this condition, because I cannot conceive of any anaesthetist, however limited his experience may be, making such a barbarous assault on a delicate membrane like the cornea.—I am, etc.,

J. B. H. Holroyd,
Anaesthetist, Sheffield Royal Infirmary.

Sheffield, Oct. 19th.

Non-Specific Colitis

Sir,—Your report last week of the meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine and the subsequent discussion has prompted me to suggest a line of treatment for this persistent and distressing malady, at once simple and abundantly efficacious.

Over thirty years ago I had occasion to treat a case of what was termed "mucous colitis" in a woman who, after the cessation of the menses, was subject monthly to a discharge of mucus, including membrane, lasting three or four days. On the hypothesis that osmosis might play some part in causation I experimentally administered Irish moss in the form of powder. The result was so satisfactory that, ever since, I have treated numerous sufferers for colitis, many from a distance, in the same way. I administer the powder in doses of a teaspoonful, in marmalade or jelly, the first thing in the morning, and allow no fluid for an hour before or after it is taken. Where the discharge is excessive or painful the powder is repeated under the same conditions in the afternoon, supplemented by a 10-grain Dover's powder twice weekly. Regarding diet, after an intensive study, no directions are forthcoming, with the exception of a restricted use of smoked fish, pastry, and food fried in fat. The motions are bulky and moist, and after a little time any antecedent constipation or diarrhoea is corrected. A firm of chemists supplies the moss in the form of powder. Where there is any susceptibility to nausea on the part of the patient the same firm supplies the powder in capsule form, each containing 10 or 15 grains. The powder has the added advantage of not being a drug, and also of being highly nutritious.—I am, etc.,

D. M. Macdonald, M.D., F.R.C.P.Ed.

Alloa, Oct. 19th.

Circumcision

Sir,—The question of circumcision seems to lead to a partisanship as violent as politics. I fancy that this enthusiasm for universality, apart from what has been called "tribal rites," is of fairly recent origin. I do not recall any clamour for it in the 'eighties. At that time it was regarded as a tiresome minor operation, sometimes required on account of an objectionable and adherent prepuce.

It was, I think, in the "naughty 'nineties" that the idea of promiscuous circumcision began to gain ground. For a time I fell in with the fashion. But it annoyed me to see the healthy progress of the infant sometimes even temporarily interrupted; and still more to see occasionally the lactation of the mother interfered with by her worrying over the child. Still more was I upset by two unusual cases which occurred in the practice of a friend (who was, by the way, a very capable surgeon, priding himself particularly on his thoroughness in this minor operation). In each of these the cicatrix contracted and drew the loose skin of the penis up over the glans to form a fresh false prepuce. In one case the operation had to be done three times. In the other the difficulty was obviated by slitting the false prepuce longitudinally, so that any subsequent contraction would tend to pull the skin off the glans instead of over it.

On discussing these cases with a well-known gynaecologist I was surprised when he gave his opinion that it was very seldom necessary to resort to circumcision. From that time I reverted to "detachment and dilatation," with careful instruction as to subsequent daily cleansing of the parts beneath the prepuce. I never had any reason to be dissatisfied with the result of this method as a substitute for circumcision. Of course neglect of such regular cleansing may lead to minor troubles later on. But the ill results of uncleanliness are not confined to the penile region.

I do not know of any statistics which suggest that the circumcised are less liable to venereal disease. Nor have I any reason to believe that the uncircumcised are more prone to masturbation; on the contrary, I can recall the cases of two mothers, who each had one son circumcised and another son not. The complaint of each of these mothers was that the circumcised boy was always "playing with his penis"; but the uncircumcised boy did not do so. I have no use for the argument that was once used to me—that I was throwing away fees for operation.—I am, etc.,

A. H. Williams, M.D.

October 20th.

Sir,—Brevity is the soul of wit: I will be brief. If the technique I have described is followed closely and the dressing shield applied to the retracted prepuce there will be no need for any other operation. But—and this is most important—the prepuce *must* be kept back for at least four to five days after the stretching, etc. I have a long experience of the older radical method of circumcision. I would not think of doing it any more. My object in writing to the *Journal* was to advocate an extensive trial of the method of stretching plus dressing-shield pressure; also, I started on the assumption that *something* must be done to overcome the severe phimosis. I am grateful to all who have stated their experiences. It was not my intention to enter into the question of the functions of the prepuce, nor into any abstruse problems concerning the origin of circumcision. These are, however, of great interest. Has it ever occurred to anyone that a vaccine prepared from the smegma bacillus may possibly be of practical use—for example, in connexion with tuberculosis therapy?—I am, etc.,

D. I. Connolly.

Sale, Oct. 16th.

Sir,—I have been waiting in vain to see someone mention what I consider by far the best treatment for phimosis, and which I have used for over thirty years.

When a male child is born the penis is at once examined, and if the glans cannot be properly exposed I ask the mother and father whether they will have the child circumcised. I make arrangements with the nurse (usually the district nurse) for the next day. Having seen the mother we go into the next room, and the nurse holds the child between her knees. A probe and a blunt pair of scissors are probably all that is necessary. Having separated all the foreskin from the glans a straight cut is made down the dorsum to the base of the glans. The foreskin is rolled back to form a scar around the penis on a level with the base of the glans. Occasionally one or two stitches are put in. A small piece of gauze is wrapped round it, to be renewed if it gets washed off. I explain that the penis may appear rather swollen on the second or third day, but that need not be worried about. On the tenth day it has healed, and the foreskin has entirely disappeared.

I have never had the slightest trouble over bleeding, as the fraenal artery is not approached, and the dressing has never given any trouble. I have done this on a few occasions to adults, under local anaesthesia, with the result that after a few months the foreskin has entirely disappeared. Of course, a few stitches have to be used.—I am, etc.,

London, W.10, Oct. 19th. NORMAN H. JOY.

SIR,—I have been watching the correspondence regarding this operation in the *Journal* to see if any improvement on the technique of the late Mr. A. Richardson of Leeds emerged, but so far have been disappointed. There is no question that the instrument used by the Jews, fashioned after the style of an Army button stick, which is slipped over the prepuce before section, is far and away the safest protection for the glans, and causes no trauma of the foreskin remaining. The key to the reconstruction is a stitch introduced on the left of the median raphe and passed obliquely to the right of the fraenum; it acts as a ligature of the fraenal artery: moreover, it puts the whole into position, and avoids a knot of tissue beneath the penis. It is essential to ligature the two dorsal arteries, which can be done by passing a needle through the skin and mucosal cuff, and throwing the Spencer Wells forceps (already applied) over the ligature, thus serving two purposes.

Those who deny the existence of phimosis remind me of the old lady who, on visiting the Zoo, was shown a giraffe. "There is no such animal," she exclaimed.—I am, etc.,

London, W., Oct. 19th. A. P. BERTWISTLE.

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Registration of Opticians

SIR,—In your issue of September 7th last "Ophthalmic Surgeon" of Capetown comments on my letter published in the *Journal* of July 13th. He makes accusations which are unjust to the word and spirit of my letter, and appears to be misguided by "mental myopia" when he looks so closely into my communication that he would fain perceive a magnified distortion of its contents. I tried to point out the reasons why medical practitioners supported registration in Jamaica, Trinidad, and British Guiana, and showed that they related to the protection of the public and not to the interests of sight-testing opticians. I then assumed that the same reasons held sway in South Africa. It was emphasized that these colonial conditions did not play a part in sight-testing practice in Great Britain, and I am yet to hear of an optician there assuming the title of "doctor" or "eye specialist."

I read of the announcement of the Bill to be passed in South Africa in the *Lancet* many weeks before writing my letter. If that announcement was "merely a bit of propaganda" by opticians in Capetown, it is a great pity that "Ophthalmic Surgeon" did not take the trouble to have such propaganda offset in an explanatory communication. As regards his allusion to New South Wales, a news item in the *British Medical Journal* of January 5th last (p. 27), under "Australia" and the subheading "An Intermediate Ophthalmic Service," points to the institution of an excellent provision of ophthalmic benefits by oculists, for persons of small means, in that Dominion area. It would be interesting to know whether an Opticians Bill quickened the activities of the Ophthalmological Society of New South Wales to found that "Medical Eye Service of New South Wales," for then the Labour Government there would have every reason to be proud. Mr. Bishop Harman made adverse comments—on behalf of the B.M.A., presumably—when the Opticians Registration Act was being introduced in British Guiana; and the British Guiana Branch also opposed the Bill. My letter contained a veiled apology for going against B.M.A. policy in advocating registration here. Reference by me to the membership code of the Association of Dispensing Opticians in England arose from an intention to get as early as possible the registration of dispensing opticians in this colony.

When the optician who has been admitted to fellowship of one of the companies, associations, or institutes that teach sight-testing in England is far away over-seas from the help and skill of the manufacturing optician he appears to be unable to respond to the demands made of him by the ophthalmologist. It is regrettable that the medical profession did not years ago assume disinterested professional control and guidance of the optician in co-ordinated service to the public. That has been done, to the benefit of all concerned, in the case of midwives, masseuses, dispensers, and chiropodists. Witness also the happy relationship in practice of dental surgeon and dental mechanic. The best solution for all would appear to be the setting up of a Register of Dispensing Opticians under the auspices of the British Medical Association, as has been done for biophysical assistants. With a well-constituted scheme of training and an examination board the optician would ultimately be glad to be given professional status as a trained technician within the fold of medicine.

For the Crown Colonies, however, that would be only half the problem solved. Without some form of State health insurance leading to ophthalmic benefits persons of small means are unable to get the services of an oculist or medical refractionist on terms that do not entail hardship to both patient and doctor. As regards the necessitous public hospital patient here, when he is given a prescription for spectacles he has to find one to two guineas to pay the minimum prices of the optician, unless the Colony Government Health Department comes to his aid or a local trust fund is approached on his behalf.

May I suggest that the appropriate committees of the B.M.A. should take up the whole question of the relationship of optician and oculist with reference to the provision of ophthalmic services in the British Empire. It might be possible to formulate a uniform policy in that way. The work done so far by the Association Professionnelle Internationale des Médecins could be utilized.—I am, etc.,

VIVIAN M. METIVIER, F.R.C.S.ED.

Port of Spain, Trinidad, Sept. 30th.

War and Peace

SIR,—May I express my gratification at your publication of the manifesto signed by 350 psychiatrists of various nations in the *British Medical Journal* of October 12th. The initiative taken by our colleagues abroad deserves recognition and support.

The direct and indirect results of the great war are probably more apparent to those of us practising psychological medicine than to any other section of our profession. There is now a grave likelihood that that catastrophe may soon be repeated on an even greater scale unless every step is taken to prevent it. War is a maniacal outburst that affects nations. Its causes, as in the individual psychoses, are organic and psychogenic. Political and economic factors (corresponding to the toxic and exhausted states in the individual) are what may be called the organic basis for war, and these are more widely understood now than formerly. The psychogenic factors, which depend on the mental make-up of the nation or individual, are, on the other hand, frequently

overlooked. Primitive fears, unresolved aggressions, and an inability to face reality are the factors which lead to a belligerent attitude to life.

Is it not, therefore, the duty of psychiatrists to prevent mass mania by the methods of mental hygiene? Have we forgotten the death and destruction of the last war, or are we impotent to prevent the next? I feel sure that if a move were made in the medical profession to rally those who stand for peace and cultural development, in opposition to modern barbarism, it would meet with considerable response and direct public attention to a vital and urgent problem.—I am, etc.,

Leslie T. Hilliard, M.A., B.Ch., D.P.M.

Maudsley Hospital, Oct. 16th.

Sir,—I am sure many psychiatrists will be in sympathy with the manifesto produced by their colleagues which you published in the *Journal* of October 12th (p. 694). It is a worthy document, but the criticism it lays itself open to is that it does not go far enough, and that in one or two places the argument is not clear. Thus in the first paragraph it analyses the psychology of the warlike individual. But—to me, anyway—it is not quite clear what the moral is. If it is that by understanding the psychology of the individual who is willing to respond to the call of war we can prevent him doing so, then I think we are on very dubious ground. Understanding the cause is by no means tantamount to removing it; and no one should realize this better than psychologists. Perhaps the answer lies in the statement that in understanding matters psychological we can understand the motives of statesmen, real, false, or unconscious. But again, where does this lead to? If the statesman is an astute realist he knows what he is doing, and why, and will not listen to our expostulations; if he is a hypocrite who disguises his motives to himself, he will rationalize them into making our arguments appear irrelevant; if he is a fool he will not understand them anyway.

The argument I am attempting to put forth is that the only sure way of making those who wish to wage war desist is by building up a mass of public opinion that will make them uncertain of support. I would suggest, therefore, that the psychologist can best make use of his art by applied psychology in the way of intense anti-war propaganda.

In another respect I cannot agree with the manifesto, in its suggestion that moral and religious appeals would hinder war. Is there any evidence to suggest that religion ever has stopped or ever will stop war? Surely throughout history all the belligerents have always claimed exclusive rights in the deity. In the same way, the tragic thing is that it is morality which is invoked on the side of war; and, as Mr. Lloyd George with much truth said, whatever the cost youth will always be prepared to sacrifice itself for its ideals. We must face realities, then, and realize that we must make use of man's primitive fighting qualities, and enlist them on the side of peace; people must be made to realize the causes of war, both human and economic, and to bring those who are prepared to make war to heel by making them realize that they cannot be sure of popular support.

Unfortunately, the man who believes in utilizing force has the trump cards; the peaceful man is bound to suffer humiliation or play to the other's suit, and if we are going to face psychological truths then we must also face that man is not *primarily* against war because of its immorality, or because human life is sacred, but because war is unpleasant. I, for one, have a rooted objection to being blown to pieces. I also don't want to blow the other fellow to pieces (though this is subsidiary), who probably feels the same as I do. But my objections are not ethical but practical. In drawing attention to the idiotic arguments put forward in favour of war, and in analysing the causes generally, the manifesto does excellent work. Is it too much to hope that psychologists will follow it up by applying their knowledge of crowd psychology to put the cause for peace in such a way as to entice the pugnacious on the side of pacifism?—I am, etc.,

London, W.1, Oct. 14th. W. Lindesay-Neustatter.

Fire-walking Experiments

Sir,—In the experiment described in the *Journal* of September 28th (p. 586) the fact that the surface temperature of the soles of the feet showed not only no rise of temperature but even a fall after the traversing of the red-hot embers admits of only two explanations: one, that the heat must completely disappear at the surface of the feet, which, as energy is indestructible, would necessitate its conversion into some other form of energy; and the other, that the skin of the feet has the power of permitting so rapid a passage of heat and absorption into the general circulation that there is insufficient time for damage to the tissues.

This abnormal power of causing the apparent disappearance of heat has been observed in experiments with metagnomes. I prefer the term "metagnome" to the more usual "medium," because the latter suggests a channel of communication for discarnate spirits. Fire-walkers are generally also metagnomes. One instance is recorded by the same careful investigator, Mr. Harry Price, in his experiments with Rudi Schneider, when the temporary fall of temperature in the room during a demonstration of telekinesis was checked by a thermometer. Similarly, the fall of temperature was checked by a thermometer by Sir William Crookes when observing the abnormal phenomena associated with Daniel Home. Daniel Home also possessed the power of handling red-hot coals without injury to his skin. It would be of great interest to know the views of medical thinkers as to the possibility of great heat being absorbed through the skin into the general circulation sufficiently rapidly to avoid any damage of tissue; of physicists, as to the possibility of the transformation of heat into another form of energy; and of psychologists, as to why this peculiar power of contacting great heat without damage to the tissues is possessed generally, if not solely, by metagnomes.—I am, etc.,

Canterbury, Oct. 21st. Wilfrid Garton.

The Services

HONORARY SURGEON TO THE KING

Major-General D. S. Skelton has been appointed Honorary Surgeon to the King, in succession to Major-General J. W. West, retired.

DEATHS IN THE SERVICES

Lieut.-Colonel Arthur Charles Younan, Bengal Medical Service (retired), died at Minehead on October 11th, aged 73. He was born on December 19th, 1861, the son of Anthony Younan of Calcutta, and educated in Calcutta and at Edinburgh University, where he graduated M.B. and C.M. in 1883, after gaining the Vane Dunlop scholarship in 1882. Entering the I.M.S. as surgeon on October 1st, 1885, he became lieutenant-colonel after twenty years' service, and retired, with an extra compensation pension, on January 1st, 1915. His whole service was passed in military employment; he was for many years medical officer of the 25th Punjabis. He had a long list of war service: Burma, 1886-9, frontier medal with two clasps; North-West Frontier of India, Hazara campaign of 1891, clasp; Isazai campaign, 1892; Chitral campaign, 1895, relief of Chitral, medal with clasp; Tochi campaign, 1897-8, clasp; Mekran, 1898; and Mohmand campaign of 1908, medal with clasp.

Obituary

The death occurred at Comber, co. Down, on September 26th of Dr. Robert Henry, J.P., for many years one of the best-known and most greatly loved personalities in Northern Ireland. Born in the heart of the Ards Peninsula in 1861, he was a type of Ulsterman whom Ulster can ill afford to lose. He graduated M.D., M.Ch. of the old Royal University of Ireland in 1881, and in 1883 began practice in Comber as assistant to the late Dr. Frame. About a year later he became medical officer to Comber Dispensary District, and had the unique record of serving in this capacity for fifty years without ever applying for "sick leave." Dr. Henry was an enthusiastic member of the British Medical Association, which he joined in 1884, and in 1931 he was chairman of the Belfast Division. A staunch Unionist, he was chairman of the Mid-Down Unionist Association, and a member of the Ulster Unionist Council; he was affectionately known as the "Father of Orangeism" in the Comber District, having held many high offices in that Order, as well as in Freemasonry. His hobby was horticulture, and he won many prizes for his beautiful exhibits, particularly of flowering shrubs. It has been given to few men to be able to devote so full a lifetime to the service of his fellows, and to have been rewarded with so great a measure of gratitude and affection by his patients, his colleagues, and his friends. Until the day of his death his clinical enthusiasm was unabated and his acumen unclouded. He is succeeded in practice by his son, Dr. Brian R. Henry.

Dr. George Frederick Stericker, who died on September 14th at Springfield, Illinois, had been in practice in that town for nearly fifty years. Born in 1862 at Pickering in Yorkshire, he received his education at Yorkshire College and the Leeds School of Medicine, obtaining the diploma M.R.C.S. in 1883 and the L.S.A. in the following year. He joined the British Medical Association in 1885. After spending five years in hospital and dispensary work in Leeds, he went to the United States in 1889, and settled at Springfield, where he had practised until his death. He was an organizer of the free infant welfare clinics in that city. During 1917 and 1918 he served as chairman of the District Appeal Board for Central Illinois. He was a member of the medical staffs of the Springfield Hospital and St. John's Hospital, specializing in the sphere of internal medicine. In 1934 he was entertained to dinner by the Springfield Medical Club to celebrate his completion of fifty years spent in the practice of medicine. He is survived by his widow, two daughters, and one son, who at the time of his father's death was in partnership with him in Springfield.

A former colleague writes of the late Lieut.-Colonel W. J. Niblock: I first met Colonel Niblock in Madras in 1909, and our acquaintance slowly ripened in the course of years, as a colleague and as his personal assistant when he acted as surgeon general and finally after his retirement from active practice. Of a singularly modest and unassuming disposition, he did not make friends easily. Under a somewhat brusque exterior he possessed a keen sense of humour, a fund of common sense, and a wealth of kindness. Thorough in all his methods, he became a very skilful and expert surgeon, with the faculty of inspiring his patients with complete confidence. Direct in his methods and scorning all subterfuge, he earned the respect and confidence of all.

The following well-known foreign medical men have recently died: Dr. Hermann Wilbrand, a Hamburg ophthalmologist, aged 85; Dr. George Hughes Kirby, professor of clinical psychiatry at Cornell University, New York, aged 60; Professor W. Rosenblatt, director of the medical clinic at Cassel; and Dr. Goldscheider, professor of clinical medicine at Berlin.

Medical Notes in Parliament

[From our Parliamentary Correspondent]

Both Houses of Parliament reassembled on October 22nd and debated foreign affairs. Mr. Baldwin promised a statement on the date of dissolution. This was expected on October 25th, with nominations for a new House of Commons on November 4th and the polls on November 14th. Mr. Ernest Brown announced that the "stand still" order respecting unemployment assistance would be continued until the spring, and that the allowance for a child under Part I of the Unemployment Insurance Scheme would be increased by 1s. to 3s. weekly. The Labour Opposition demanded a debate on unemployment. The Parliamentary Medical Committee did not meet.

On October 22nd Mr. Robert Hudson announced a concession in the payment of allowances to the families of unemployed ex-service men who enter Ministry of Pensions hospitals.

Universities and Colleges

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Harveian Commemoration

The annual Harveian Commemoration was held at the Royal College of Physicians of London on St. Luke's Day, October 18th. In the afternoon the annual Harveian Oration was delivered by Sir Henry Dale, F.R.S., Director of the National Institute for Medical Research. This will be found in the opening pages of the *Journal*. The President (Lord Dawson of Penn) afterwards presented the Baly gold medal to Dr. F. H. A. Marshall, for distinguished work in physiology, and the Bisset-Hawkins gold medal to Sir George Newman, in recognition of his work in promoting public health.

At the Harveian Dinner held in the College that evening the company included many distinguished guests, some of whom were there in a twofold capacity—as Fellows of the College and as representatives of other bodies. They were received in the library by the President (Lord Dawson), the Censors (Sir Arthur Hall, Dr. H. L. Tidy, and Dr. C. E. Lakin), the Registrar (Sir Raymond Crawfurd), the Treasurer (Dr. Sidney Phillips), and the Harveian Librarian (Dr. Arnold Chaplin). After the memory of William Harvey had been toasted in silence "The Health of the Guests" was proposed by the President. Lord Dawson recalled the injunction of Harvey to meet in good-fellowship once a year; but it was not to perpetuate his own name and fame that he ordered this commemoration; he must have had a vision that told him his discovery would go on through the years, and he regarded his beloved College as an instrument for that purpose. Harvey realized the need for contact between medical and other activities; hence the tradition of entertaining eminent guests at the annual banquet. Lord Dawson particularly welcomed Mr. John Drinkwater and Sir William Llewellyn, P.R.A., representing the arts; Lord Atkin and Mr. Justice Charles, representing the law; Sir Cuthbert Wallace, President of the Royal College of Surgeons; Sir George Newman and his successor, Dr. Arthur MacNalty, who came into office at an important moment, when various knowledge had to be rallied for the Minister's guidance; Professor John Ryle, lately appointed to the Regius Chair of Physic at Cambridge in the full vigour of his career; Surgeon Vice-Admiral R. W. B. Hall, Medical Director of the Navy; Sir Frederick Gowland Hopkins, President of the Royal Society; Sir Frederick Menzies, Medical Officer of Health, L.C.C.; and, lastly, the Minister of Health, Sir Kingsley Wood, who had been the best Postmaster-General of modern times, and whom the whole profession wished well in his work for the public health.

Sir Kingsley Wood, in reply, said that he was sorry to leave the G.P.O., but this was a more important job. He welcomed the honour paid that day to Sir George Newman and also the promotion of Dr. MacNalty. Paying a tribute to Harvey's fertilizing influence on medicine, Sir Kingsley Wood said that Harvey's College had always responded to the

calls made upon it in the public interest, and he himself had had constant help and encouragement from the President of to-day. Public health was more and more concerning itself with the future of the race; hence the increasing attention paid to physical training and the campaign to abolish slums and improve housing. In all this the Ministry looked for active co-operation by the medical profession. Lord Atkin, who also replied, said that it was a pleasure in the midst of war and rumours of war to dine again with medical men, whose business it was to relieve and allay troubles, not foment them. He entered one more plea for the establishment of a central medico-legal institute in London, the only great capital city without one. He hoped that the committee set up by the Home Secretary, and of which he was chairman, might by this time next year be within sight of achieving that ideal. Sir Arthur Hall, senior Censor, in proposing the health of the Harveian Orator, said that medical men, unlike their colleagues in the law and the Church, had little chance of cultivating oratory. The wise physician said as little as possible, and "what the doctor said" was seldom what he really said. The College always chose for its annual Orator a man who had risen to the highest rank in his branch of work. They were fortunate this year to find such a man who could also deliver an oration of the first order. The formal proceedings ended with Sir Henry Dale's reply to the toast.

UNIVERSITY OF OXFORD

At a congregation held on October 17th the degree of B.M. was conferred on R. E. Adam (University College).

UNIVERSITY OF CAMBRIDGE

At a congregation held on October 18th the following medical degrees were conferred:

M.D.—B. F. Longbottom.
M.B., B.Chir.—E. M. Griffin.
M.B.—*J. D. Hay, J. N. Groves, C. G. Parsons.
B.Chir.—*T. D. F. Money, *P. H. L. Playfair, R. I. N. Greaves, L. R. Gardner, E. P. H. Drake, J. H. Patterson, W. F. Walton.

* By proxy.

At the congregation of the Senate on November 2nd graces will be submitted sanctioning conferment of the degrees of Doctor of Medicine, *honoris causa*, and Master of Arts upon John Alfred Ryle, M.D.Lond., Regius Professor of Physic; and the degree of Master of Arts upon Graham Patterson McCullagh, M.D.Belf., University Demonstrator in Pathology.

UNIVERSITY OF LIVERPOOL

Hubert Horace Stones, M.D., M.D.S., has been appointed to the Louis Cohen Chair of Dental Surgery in the place of Professor W. H. Gilmour, retired.

Professor H. D. Wright will deliver a lecture on "Resistance to Infection" on Friday, November 1st, at 5.30 p.m.

UNIVERSITY OF MANCHESTER

On October 18th Dr. James Davson was appointed Demonstrator in Pathology.

UNIVERSITY OF GLASGOW

A congregation was held on October 19th, when the following degrees were conferred:

M.B., Ch.B.—*Margaret D. Green, *H. L. Campbell, *P. J. Cantor, †R. M. Calder, †J. Cuthbert, †I. D. Henderson, †J. S. Hall, †D. C. Miln, †H. T. Richmond, †Catherine Richardson, †G. H. G. Hope, †A. D. T. Govan, †A. S. Rogen, †J. Levine, †J. B. Lynch, J. Aitken, May D. Anderson, I. Ashforth, A. Y. Barclay, R. J. W. Barlow, H. Bernstein, J. C. Brash, D. R. Brown, P. M. H. Browning, I. W. Burke, J. F. Cadas, J. H. Chambers, J. H. C. Clarke, J. Cochran, J. Cohen, G. D. Cresswell, Maud G. Dempster, R. I. T. Dunnachie, D. J. Easton, J. C. Eaton, P. F. Fletcher, Audrey M. Forbes, K. Fraser, M. Freedman, W. G. Garrow, G. McL. Gorrie, R. J. Gourlay, R. Gowans, W. Gray, H. Greer, A. W. St. C. Greig, J. F. K. Grieve, G. H. Hall, Mary D. Hardie, G. A. E. Harman, J. W. Henderson, J. Hilferty, W. C. Howie, H. E. Hutchison, C. Kelly, W. McK. S. Kelso, A. S. M. King, G. B. L. Laird, W. Laurie, J. Leckie, W. Leslie, D. S. MacL. MacArthur, P. MacArthur, Elizabeth McC. McCann, W. M. McCutcheon, R. S. McGeorge, G. A. Macgregor, J. S. McGregor, W. McKechnie, W. MacKendrick, N. Mackenzie, C. J. Mackinlay, A. Macleod, J. D. McRaw, W. Magauran, J. B. Mair, S. L. Mann, R. D. Menzies, J. S. Meredith, H. H. Miller, A. Morrison, H. A. Mullen, E. H. Murchison, D. A. Naismith, F. Ogunro, D. B. Ramsay, W. Richmond, J. Schloss, D. G. Smith, F. A. Smith, D. Stenhouse, J. E. Struthers, Janet W. Sutherland, G. Swan, J. F. Swan, J. R. Taylor, D. Thomson, J. E. Tillotson, J. Watt, W. J. Weetch, J. H. Werk, T. C. B. Williamson, R. W. Wyse, R. P. Young, W. C. Young.

* With honours. † With commendation.

Margaret D. Green gained the Brunton Memorial Prize, awarded to the most distinguished graduate in medicine of the year 1935, and the West of Scotland R.A.M.C. Memorial Prize, awarded to the candidate with the highest aggregate marks in medicine, surgery, and midwifery in the final M.B., Ch.B. examination held during 1935.

The King, on the recommendation of the Secretary of State for Scotland, has approved the appointment of Dr. Edward Hindle to be Regius Professor of Zoology in the University of Glasgow, in place of Professor John Graham Kerr, resigned.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the Royal College of Surgeons of Edinburgh, held on October 15th, with Dr. A. H. H. Sinclair, president, in the chair, the following successful candidates were admitted Fellows:

U. P. Sinha, E. W. B. Griffiths, G. N. Barker, E. F. Barnardo, A. G. Bester, D. G. W. Brown, R. C. Burr, H. P. Clark, P. F. S. Court, H. D. Cronyn, J. Durran, T. G. H. Hogg, C. Hotson, D. Hugo, R. J. Kellar, M. N. Khanna, A. L. McFarlane, W. A. Mackey, N. J. L. Margetson, A. G. G. Melville, J. Penn, L. W. Plewes, Aileen M. S. Pollock, T. Purce, T. R. Quinn, A. C. Riley, A. L. Sheild, G. Stephen, D. R. L. Stevenson.

At the annual meeting held on October 16th the following officers were elected: *President*, Mr. Henry Wade; *Vice-President*, Dr. A. H. H. Sinclair; *Secretary and Treasurer*, Mr. J. W. Struthers; *Representative on the General Medical Council*, Mr. Alexander Miles; *Convener of Museum Committee*, Dr. A. Logan Turner; *Librarian*, Mr. D. M. Greig.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

The annual meeting of the Royal College of Physicians of Ireland was held on St. Luke's Day, October 18th.

Dr. J. A. Matson was elected president; Dr. F. J. O'Donnell, vice-president; Professor T. Gillman Moorhead, representative on the General Medical Council; Dr. H. Bewley, treasurer; and Dr. T. P. C. Kirkpatrick, registrar.

Medico-Legal

AN EPILEPTIC MOTORIST: FALSE DECLARATION OF FITNESS

At the Northamptonshire assizes on October 17th John Macilwaine Sneath, aged 26, a builder's merchant of Peterborough, was charged with manslaughter and with making a false declaration when applying for a motor-driving licence by stating that he did not suffer from epilepsy. He pleaded "Not guilty" to the manslaughter charge, but "Guilty" to the charge of making a false declaration, and the Crown prosecution accepted these pleas, and a formal verdict of "Not guilty" was entered on the first charge.

For the prosecution it was stated that the accused had been under treatment for several years. On one occasion when he had an attack he fell from a motor cycle, but without ill consequences. When he applied for his licence he answered the question as to epilepsy in the negative. For the defence it was pointed out that the question on the application form was in the present tense. [The question on the application form reads: "Do you suffer from epilepsy, or from sudden attacks of disabling giddiness or fainting?" A note on the subject states that if the applicant is in doubt as to his answer to this question, or to a subsequent question about eyesight, he should obtain professional advice. "If as a result of such advice he is unable to give a satisfactory answer, he is not thereby precluded from making another declaration at a future date, if by reason of a change in the circumstances, he is then able to give a different answer."] Sneath had had epileptic attacks, but they had become less frequent, and he had hoped they had ceased altogether. There had been an absence of attacks for some time before he made his application, and therefore he declared himself not to be suffering from epilepsy.

Mr. Justice du Parcq made an order prohibiting Sneath for life from holding a motor-driving licence, and ordered him to pay the costs of the prosecution, not to exceed £50.

Medical News

The Semon Lecture will be delivered at the Royal Society of Medicine, 1, Wimpole Street, on Thursday, October 31st, at 5 p.m., by Sir StClair Thomson, who has chosen for his subject "The Defences of the Air Passages." The lecture is under the auspices of the University of London, and the chair will be taken by the Vice-Chancellor, Mr. H. L. Eason.

Dr. C. Killick Millard will deliver a Chadwick Public Lecture on "The Vaccination Question To-day" at 26, Portland Place, W., on Friday, November 1st, at 5.30 p.m., when the chair will be taken by Professor Major Greenwood, F.R.S. Admission free, without ticket. Particulars of courses may be obtained from the secretary of the Chadwick Trust, 204, Abbey House, Westminster, S.W.1.

The annual prize distribution at Charing Cross Hospital Medical School will take place in the council room of the hospital to-day (Friday, October 25th) at 4 p.m., when the Minister of Health, Sir Kingsley Wood, will give the inaugural address.

The annual prize distribution at St. George's Hospital Medical School will take place in the board room of the hospital on Wednesday, November 13th, at 3 p.m., when Lord Macmillan, chairman of the Court of the University of London, will give the inaugural address. The annual dinner will be held in the evening at 7.30 for 8 o'clock at Claridge's Hotel.

The annual general meeting of the West Riding Association of Graduates of the University of Edinburgh will be held at the Midland Hotel, Bradford, on Wednesday, November 6th, at 6.45 p.m., followed by the annual dinner at 7.30 p.m., when the guest of the evening will be Mr. Henry Wade. Further information may be obtained from the honorary secretary, Mr. H. A. Rippiner, 4, Clifton Villas, Manningham, Bradford.

A meeting of the Devon and Exeter Medico-Chirurgical Society will be held at the Royal Devon and Exeter Hospital, Exeter, on Thursday, October 31st, at 4 p.m., when Dr. H. W. Barber will give an address on "The Aetiology and Treatment of Eczema and Psoriasis." The forty-second Exeter and South-Western Medical Dinner will be held at the Royal Clarence Hotel, Cathedral Yard, Exeter, at 7.45 p.m., when Dr. Barber will be the guest of the evening.

A course of practical advances in internal medicine during 1935 will be held in the propaedeutic clinic at Paris under the direction of Professor E. Sergent from November 4th to 9th. The fee is 250 francs. Further information can be obtained from the Secrétariat de la Faculté de Médecine, 12, Rue de l'Ecole de Médecine, Paris.

A post-graduate course of free lectures for the general practitioner on practical methods of physical medicine, with demonstrations, will be held at the St. John Clinic and Institute of Physical Medicine, Ranelagh Road, Pimlico, S.W., on alternate Fridays, at 4.30 p.m., from November 1st, 1935, to March 20th, 1936, both dates inclusive.

A lecture on the theory and practice of contraception will be given to medical students and practitioners on Friday, November 15th, at 6 p.m., at the Walworth Women's Welfare Centre, 153A, East Street, S.E.17. Demonstrations will be given on the evenings of November 22nd and 29th.

The Fellowship of Medicine (1, Wimpole Street, W.) announces the following courses: chest diseases at City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E., October 28th to November 2nd; urology at St. Peter's Hospital, November 4th to 16th; medicine, surgery, and gynaecology at Royal Waterloo Hospital, November 11th to 23rd; venereal diseases at London Lock Hospital, November 18th to December 14th; infants' diseases at Infants Hospital, November 25th to December 7th. Week-end courses include clinical surgery at Royal Albert Dock Hospital, November 2nd and 3rd; gynaecology at Samaritan Hospital, November 15th and 16th. The lecture on thyroid, postponed from October 17th, will be given on October 29th, at 8.30 p.m., at the National Temperance Hospital. An evening clinical and pathology course for M.R.C.P. candidates will be held at the National Temperance Hospital on Tuesdays and Thursdays, at 8 p.m., from November 26th to December 12th. Courses and lectures are open only to members and associates of the Fellowship of Medicine.

The autumn session of the Swiss Society of Neurology will be held in conjunction with the Swiss Society of Psychiatry at Fribourg on November 9th and 10th, when the subjects for discussion among others will be the importance of humoral changes and avitaminoses in neurology and psychiatry, introduced by Dr. Demole of Basel; nervous symptoms and experimental avitaminosis, introduced by Professor G. Mouriquand of Lyons; neurological and psychiatric problems in the light of humoral pathology, introduced by Professor F. Georgi of Yverdun. Further information can be obtained from the president of the society, Dr. Charles Dubois, 20, Falkenhöheweg, Berne.

One of the first public engagements of the Duke of York upon his return to London was to attend, as President of the Seamen's Hospital Society, a meeting at Trinity House on October 22nd to inaugurate an appeal for £50,000 to build a new Albert Dock Hospital. The existing hospital—one of the six establishments maintained by the Society—was opened only forty-six years ago, but since then more than 350,000 sick and injured seamen have entered its doors for treatment. Owing to the shifting soil on which it is built, the present building has been condemned as perilously unsafe. The Port of London Authority has granted a new site near the present structure—that is to say, in the very midst of the docks and quays—and £25,000 towards the new building.

The issue of the *Wiener medizinische Wochenschrift* for September 21st is dedicated to Paul Ehrlich, on the occasion of the twenty-fifth anniversary of his announcement at the Königsberg Medical Society of the discovery of salvarsan.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, five lines).

The **TELEGRAPHIC ADDRESSES** are
EDITOR OF THE *BRITISH MEDICAL JOURNAL, Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Persistent Lactation

Dr. C. RICHARDSON WHITE (Merthyr Vale) writes: "Perplexed" (Cornwall) should try 1-drachm doses every four hours of pot. acetas in water. I have used this for years. One eight-ounce bottle usually suffices, but a second one is sometimes required. I have never known it fail.

"Physician" writes: In reply to "Perplexed" (October 19th, p. 769), who asks for the treatment of persistent lactation in the mother of a boy now aged 4½ years, might I suggest that he tries the effect of large doses of oestrin. In *Medical Clinics of North America* (vol. xix, No. 1, p. 205) he will find an article by Mazer and Israel giving some details of an article about to be published. It is reasonable to believe that the persistent lactation in this case is due to some pituitary-ovarian imbalance, and that large doses of oestrin might restore the balance and so terminate the lactation.

Chronic Dermatitis

"J. M. M. D." writes: I have a patient, a male aged 21, who has suffered from a dermatitis since the age of 3 months. The skin lesions are never completely healed, but there are occasional exacerbations with development of "weeping" patches on the dorsum of the hands and forearms and occasionally on face and buttocks. These later dry up, leaving scaly patches with fissures in between. He has had all the standard lotions, pastes, and ointments for local treatment, and has at various times been dosed with tonics, calcium lactate, arsenic, etc. An attempt at protein shock therapy with T.A.B. vaccine was made in a hospital without success, and later he received a course of peptone injections. Autohaemotherapy has also failed. I should be grateful for any suggestions.

Aphonia

Dr. John Donald writes: Would any reader give the prognosis in the case of a female, aged 50, whose left vocal cord will not come to the middle line on phonation; cords pale; whispering for two years.

Analgesia for Suturing Cuts

"T. M. P." writes in reply to the query by "G. P." (September 7th, p. 483): May I call attention to a special surgical dressing which is prepared by Abbott Laboratories, Ltd., to prevent sticking. It is marketed under the name of "parresined lace-mesh surgical dressing," and is a non-sticking gauze dressing which prevents all over-dressings from adhering, and ensures free wound drainage. Samples of the material may be obtained from John Bell & Croyden, 50, Wigmore Street, W.1.

Income Tax

Expenses—What Proportion?

"J. B." inquires what percentage of the various classes of expenditure should be regarded as allowable.

⁂ Circumstances vary so much that any specific percentage of such expenses as rent and rates, servants' wages and board, etc., is very difficult to suggest, and might be misleading. A common ratio is one-half, but that might be inadequate where a special rent is paid for a "site" (for example, in the West End of London), and might possibly be excessive in the case of a large family house—in fact, the only real test is what is a fair division, having regard to space occupied and the relatively high value of ground-floor rooms. Repairs can usually be allocated specifically to the professional portions of the premises. Subscriptions to professional associations are allowable, but a claim for those to local charities cannot be legally enforced. Motor expenses (including chauffeur's wages, etc.) should be divided on a mileage basis as nearly as possible.

LETTERS, NOTES, ETC.

The London Medical Exhibition

The London Medical Exhibition—of drugs, foods, surgical equipment, and the like—has been held from October 21st to 25th in the hall of the Royal Horticultural Society, Westminster, where nearly 170 stands have been accommodated, displaying the products of 140 firms. The first impression of such an exhibition is that one has seen it all before, but a nearer view discloses many variants—presumably improvements—on familiar products. Moreover, a list was handed to us of fifty or more preparations or devices of one kind or another which were being shown for the first time. An unusually large number of stands were devoted to glandular preparations; surgical instruments had a good showing; among electro-medical apparatus were several examples of short-wave diathermy machines; there were the usual seductive food stands, and the almost equally seductive pharmaceutical displays. One stand was devoted solely to rubber gloves, and two were given up entirely to contraceptive devices. Nearly a dozen bookstalls added to the interest of the exhibition, and three British spas advertised their attractions. Among products shown for the first time at this exhibition were sodium mandelate, for use in the treatment of urinary infections; a gonad-stimulating substance from the urine of pregnancy; a malt and cod-liver oil claiming to be three times stronger in vitamin potency than the usual product; a concentrated preparation of the growth hormone from the anterior lobe of the pituitary, intended for the treatment of endocrine dwarfism; British grass pollens for the treatment of hay fever; and British bee venom for fibrositis. An exhibit that created special interest was a portable electrocardiograph providing for both photographic recording and also direct visual observation, the tracing out of the wave form being made visible to the eye by the use of an oscillograph screen with a long afterglow, and as the afterglow is of some seconds' duration several cardiac cycles remain simultaneously visible. There were several devices for the comfort of patients; one (already described in these columns on August 10th) was a pair of spectacles to enable one to read with convenience whilst lying down. Again, there was the new gas fire which can be regulated from the bed by means of an automatic switch. Altogether the exhibition demonstrated again the resource and energy which wait upon the medical profession, supplying its demands—at times creating them—for new devices and procedures.

The Intrauterine Pessary in Germany

After discussion of an introductory paper, in which Gesenius (*Zentralbl. f. Gynäk.*, September 14th) advocated that the introduction of the intrauterine pessary should be forbidden, the Berlin Medical Society, in April, 1935, passed a unanimous resolution that the insertion of an intrauterine pessary is a "negligent treatment" in the sense required for legal proscription. The institution of juridical penalties is contemplated: it has long been advocated by many German physicians.

Medical Golf

A week-end meeting of the London Irish Medical Golfing Society was held at Sandwich on October 12th and 13th, with the following results. O'Malley Cup: First, R. H. Jones (2 up); second, M. J. Smyth and M. Thomson (all square). Lett Cup (Foursomes): Winners, F. D. Donovan and G. Quinn (on the second nine after a tie); runners-up, L. F. Clarke and M. O'Regan. Canny Ryall Cup: First, L. F. Clarke (on the second nine after a tie); second, M. J. Healy. Captain's Prize: Winner, L. F. Clarke (3 up). Cahill Trophy: First, E. Goggin; second, F. McG. Loughnane, M. O'Regan, M. J. Smith, and H. J. Taggart (tied); third, F. McConnell. Mannix Cup (for four best medal rounds): First, M. J. Smyth; second, H. J. Taggart; third, J. G. H. McNabb.

A Disclaimer

Mr. G. Bankoff (London, W.1) writes: It would oblige me greatly if you would publish a statement disclaiming any knowledge or responsibility on my part for the article published on the front page of the *Sunday Referee* of October 20th, entitled "Brilliant Young Surgeon's Discovery," etc., emphasizing the facts that no information, including the photograph, was supplied by me or anyone in my employ, and that the writer of the article is quite unknown to me. Further, that I have never claimed to be the discoverer of this particular operative treatment, that my method of local anaesthesia published in the *Lancet* has no direct connexion with thyroidectomy, and must not be confused with the original "twilight sleep," and that the personal details given are obviously incorrect.

Messrs. H. K. Lewis and Co., Ltd. (136, Gower Street, London, W.C.1) ask us to state that they can supply copies of the *Annual Review of Biochemistry*, a notice of which appeared in our issue of October 19th (p. 726).

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 52, 53, 54, 55, 58, and 59 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 56 and 57.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *192*.